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DORJÉ-LING.

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CALCUTTA:

...TTMANN, BENGAL M...TARY ORPHAN ...S.

1838.

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BOMBAY BRANCH
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ROYAL ASIATIC SOCIETY.
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DORJÉ-LING.

"TE FLAGRANTIS ATROX HORA CANICULÆ
NESCIT TANGERE."—HOR.

61461
ac.

CALCUTTA:

G. H. HUTTMANN, BENGAL MILITARY ORPHAN PRESS.

1838.

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ERRATA.

Page 27—for "72,118" read "7,218."

Page 28—after "told" insert "him that."

Page 29, line 11—for "this" read "Dorjéling."

Page 33, line 9—before "nutritious" insert "less."

Page 36, line 1—for "were" read "are."

Page 40—for "roads" read "road."

INSTRUCTIONS TO THE BINDER.

The enlarged Map of the Dorjéling Ridge, (prepared in 1822,) to face page 8.

Small Map, (prepared in 1838,) with proposed road along the ridge marked in red line, to face page 22.

General Map of the Country between Titalia and Dorjéling, (prepared in 1822,) to be affixed at the end.

PREFACE.

THE object of the publication in the present form of the information contained in the Official Records of Government regarding Dorjéling, is not to influence public opinion by pointing to the station as the most proper for selection, but to place all the information obtained in juxta-position, and thus to allow every individual to form his own unbiassed judgment previous to locating himself. The compilation has been made from the Reports and Memoranda furnished by Mr. J. W. Grant, Captain Herbert, Lieut.-Col. Lloyd, and Dr. H. Chapman.

These Reports cannot fail to lead the community to a fair decision, as those of the two former Gentlemen, who visited the place in 1829-30, have been tested by the observations of the two Gentlemen last named, and the accuracy of the joint Report of these is assured by the method adopted in its preparation; for each separately drew up a series of Memoranda on the different points which seemed to demand notice, and from these the official Report submitted by them to Government was compiled. On comparison they found the opinions expressed were very nearly the same in both Memoranda, but there were some differences, and Government were consequently furnished with both Gentlemen's separate Notes. The differences were such as these: Colonel Lloyd's Memorandum mentioned circumstances of which Dr. Chapman could have had no information, and

Dr. Chapman's are most full respecting climate and approaches to which his observations from being a stranger were more fully attracted than could be expected from a person who had repeatedly visited the spot, as Colonel Lloyd had done. The views of Government, from the period of first directing enquiry to the present laying the Reports obtained before the public, will be gathered from the Introductory Remarks. The Proceedings from which these have been extracted extend over a period commencing in 1829, and ending with Dr. Chapman's return to the Presidency last November.

It has been thought preferable by the Compiler to cite extracted passages from all the Documents themselves instead of abstracting and condensing them, because with whatever labor and care the condensation might be made, the work in such a form must of necessity have proved less satisfactory, both to the public Officers, the authors of the papers, and to the community at large, who are left to decide for themselves on the Official information furnished by them. In the Asiatic Society's Journal for March and April 1830, the particulars will be found of a journey by Captain Herbert to the Sikim Territory, during which he visited Dorjéling, which may be referred to collaterally.

Wherever contradictory opinions have struck the Compiler they have been adverted to in a note, but doubtless many have escaped notice, for which, together with all other similar inadvertencies attendant on a hurried preparation, indulgence must be claimed.

H. V. BAYLEY.

POLITICAL DEPARTMENT,
March, 1838.

INTRODUCTORY REMARKS.

The first official record connected with Dorjéling* is a letter from Lieutenant Colonel Lloyd, dated 18th June, 1829.† Mr. Grant, the Commercial Resident at Maldah, had about the same period brought frequently to the notice of the Governor General, (Lord William Bentinck) the numerous advantages promised by the establishment of a Sanatarium at Dorjéling. On this the Governor General requested Captain Herbert, the Deputy Surveyor General, to explore the tract of the Sikim Hills in company with Mr. Grant: and his Lordship's opinion was that to the extreme earnestness of the latter in commending Dorjéling that place would be mainly indebted for any importance into which it might hereafter rise. The journey was undertaken without expectation of remuneration, and the results were communicated by Captain Herbert and Mr. W. Grant in reports dated the 20th and 21st April, 1830, respectively;‡ the former strongly advocated its occupation for a Military position as the key of a pass into the Goorka territory, in addition to pointing out in conjunction with the latter the various capabilities of the place enumerated in the following pages under separate heads. Owing to various obstacles, partly arising from the internal feuds existing in the Sikim territory, partly from the absence of Colonel Lloyd, the furtherance of the plan of establishing a Convalescent Depot at Dorjéling seems to have been lost sight of

* Vide Appendix A A.

† The word is said to be Thibetian derived from *Dorjé*, signifying "a sceptre," *Linga* the same as in Sanscrit, which may be construed "a pillar;" it is conjectured by some that a "pillar" raised in token of conquest gave the name.

‡ Extracted passages of these papers have furnished the information referred to in the subsequent pages as emanating from these two gentlemen.

or two or three years. During this interval the Court of Directors had received the reports relating to the spot, and expressed a hope to hear that the local Government had found it practicable and advisable to establish a Sanatarium at Dorjéling, for the Hon'ble Court considered that it might prove a valuable Depot for the temporary reception of European Recruits, and even a permanent Cantonment for an European Regiment. The consideration of its advantages was soon after revived, and two minutes were recorded by Lord William Bentinck and Mr. Blunt, on the subject of the establishment of a Sanatarium at Dorjéling; and the result was the issue of instructions to Colonel Lloyd to open a negotiation with the Rajah of Sikim for the cession of Dorjéling to the British Government in return for an equivalent in land or money.

With a view to give effect to the contemplated arrangement, Colonel Lloyd was instructed on the completion of the duty on which he was then engaged, to obtain an interview with the Rajah of Sikim, in order to procure the cession, if that desirable object could be accomplished without any great sacrifice.

The Governor General in Council sanctioned the offer to the Rajah of such equivalent either in land or money as might be deemed reasonable, and it was intimated to Colonel Lloyd that it would be satisfactory to learn his views as regarded this point previously to his entering on the negotiation, if these could be communicated without causing any delay in the attainment of the object.

It was of course expected that he would take particular pains to make the Rajah understand that the superiority of the climate of Dorjéling and its consequent fitness for a Sanatarium were the only reasons which induced the British Government to wish for its possession. He was further desired to report the progress of his negotiation from time to time, and to offer such suggestions as might occur to him regarding the measures to be adopted on the occupation of the place, should he be able to procure its cession.

The Sikim Rajah annexed two conditions to the cession of Dorjéling; first, the grant to him of Debgang in an exchange for it, and secondly, that one Rummoo Purdhan, against whom the Rajah advanced a claim for the Revenues of the Morung for two years,

i. e. 1832 and 1833, should be compelled to account for the same. With these conditions it seemed to Government to be impracticable to comply. Dorjéling was an uninhabited tract, and it would have been unobjectionable to make over to Sikim a similar tract in the Plains in exchange for it, but Debgang was a fertile and populous district which was conferred in perpetuity on the Rajah of Julpye Gooree and Bykuntpore, in the year 1828, in compensation for injuries sustained by him. Its transfer to Sikim was therefore out of the question.

It was doubtful too how far Government would be justified in compelling a settlement of accounts between the above Rummo Purdhan and the Rajah of Sikim, and admitting that the measure would be free from objection, it did not appear to be practicable as the said Purdhan was reported to have absconded.

With reference to a subsequent communication from Colonel Lloyd, furnishing additional information relative to Debgang, he was informed that the circumstances reported by him, had not altered the opinion entertained by the Government, as to the inexpediency of transferring that tract of country to the Rajah of Sikim.

He was however requested to state, whether he was aware of the existence of any waste land belonging to the British Government in the neighbourhood of Sikim, which the Rajah would be content to accept as an equivalent; or if there was no land of this description in the vicinity, to report what would in his opinion be considered by the Rajah as a sufficient pecuniary compensation for the cession of Dorjéling.

Judging from Colonel Lloyd's letter in answer to the above instructions, that the Rajah of Sikim was not cordially disposed to cede Dorjéling, Government desired him to abstain from urging any further negotiation having that object in view.

In the month of August ensuing, however, Colonel Lloyd reported the receipt of a paper from the Rajah confirmatory of the grant of Dorjéling ; but in consequence of the instructions above adverted to he endeavoured to ascertain before forwarding to Government the document in question, the real disposition of the Rajah in regard to this matter. He accordingly addressed a letter to that Chief, apprizing him that as the two conditions which he had originally annexed to the grant of Dorjéling could not be complied

with by the British Government, he was at liberty to revoke the paper of grant if he felt at all disinclined to give up the place on any other terms; if, on the other hand, from friendship to the British Government, he was still desirous of ceding it unconditionally, he was requested distinctly to say so.

Government received a report of the result of this reference to the Rajah, together with a letter from that Chief, addressed to Colonel Lloyd, and the original grant of Dorjéling.

It appeared that the transfer had been unconditionally made by the Rajah of Sikim, and it only remained to consider the best means of turning it to the advantage of the British Government, Colonel Lloyd was therefore requested to report upon the measures which might seem to him advisable to be adopted in taking possession of the grant and establishing a Sanatarium thereon.

That Officer transmitted his sentiments and was informed that it might eventually be proper to adopt his suggestions, but that Government had not sufficient experience of the beneficial nature of the climate of Dorjéling to warrant its incurring immediately any considerable expense for the establishment of a Sanatarium.

With a view to test the climate of Dorjéling and to ascertain other local peculiarities, it was at first determined to depute Lieutenant Colonel Lloyd to that station immediately subsequent to the above transactions, accompanied by a Medical Officer of experience and ability; but it appearing from a communication received that considerable difficulties would in all probability be experienced in proceeding to Dorjéling at so late a season of the year as the month of May, it was resolved that the performance of the duty in question should be postponed till the ensuing cold weather. On that season arriving Mr. Assistant Surgeon Chapman was appointed to accompany Colonel Lloyd to Dorjéling. He was supplied with such scientific instruments as he might require to aid him in the researches and reports relative to the climate and general statistics of Dorjéling.

The abovementioned Officers were directed to furnish a joint report on the results of their enquiries and observations, and to keep daily itineraries of their marches, as well as a daily journal of all interesting occurrences.

The result was communicated to Government in two letters under date the 5th June and 5th September last respectively, and the cited extracts from them have supplied the various items of information detailed in the remainder of this publication.

It may be as well here to remark that the Hon'ble Court of Directors in their late dispatches, approve all the measures that have been taken towards the full ascertainment of the climate and capabilities of the place, but caution the Government not to involve itself in heavy expences for objects of uncertain benefit, and it is by the public that this uncertainty can chiefly be expected to be removed.

The Governor General had hoped that he should meet Dr. Chapman, on the river on his return to his professional duties at the Presidency, but as that hope was accidently disappointed, and as the community showed considerable interest in the subject in their address to His Lordship at the close of last year, His Lordship saw no reason for delaying to submit to the decision of the public the abandonment or furtherance of the ulterior measures to be adopted to render Dorjéling the rival Sanatarium of Simla, and a much more easily-accessible refuge from the heat of the Bengal plains. In accordance therefore with the wish of Government the following brief statements, on the various topics connected with the spot, are published.

TOPOGRAPHY.

Dorjéling is situated on one of the numerous ramifications of the Sinchul Mountain, which rising nearly 9,000 feet, forms so remarkable a feature in every view of the Sikim hills from the plains. This ramification takes a northern direction, and after descending about 2 or 3 miles rises again into a small spreading eminence, whence a second ramification of some breadth is thrown off to the westward.* This spot is the site of Dorjéling, and on the summit of the knoll are the remains of the Goomboo or monastery; the Kazee's house being below on the spreading part of the ridge.†

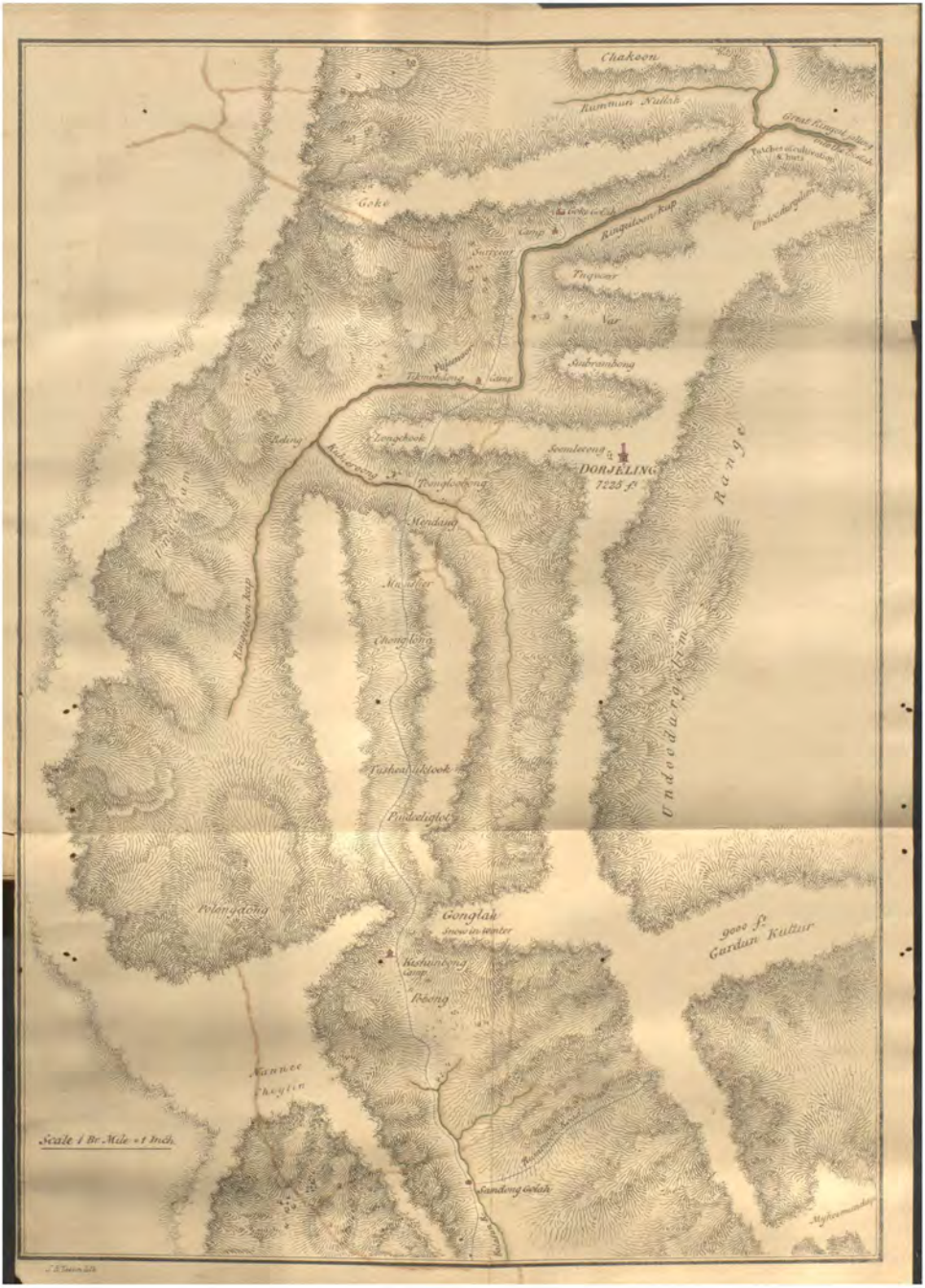
According to Mr. Grant's Memoranda, Dorjéling is situated on a high ridge, and may be called the northern point of the mountain of

* Vide Dr. Chapman's Journal, Dec. 1, 1836, in Appendix A.

† Extract from Captain Herbert's Report

Sinchul, which rises from the plains about 25 miles from Titalyah. There are several lateral branches to the east and west, such as Gurdun-Kuttur, Ging, and Ginglah; but the main body of the mountain continues unbroken in a northerly direction until it ends rather abruptly at the river called the little Runjeet, on the top of this point formerly stood the station of Dorjéling. Dr. Chapman reports that Dorjéling is in latitude 27° N. and longitude nearly the same as Calcutta, and informs us that there is also the following *accurate* description of the place in the late Captain Herbert's account of his visit to the Sikim mountains in 1830.* "Dorjéling is on the southern side of a great hollow or "basin, being that of the Runjit river, which falls into the Teesta, "a few miles east of the place; to the north the view is open, "and exhibits the usual succession of range beyond range, all irre-"gularly ramifying in every direction and in apparently inextrica-"ble confusion; it terminates in the snowy range; to the westward "the view is confined by a lofty range at the distance of about "10 miles; to the eastward appears the valley of the Teesta, and "on each side of it is the confused assemblage of mountain ridges "as to the north; to the south Dorjéling has the Sinchul peak "elevated about 9,000 feet, and Gurdun-Kuttur range, which is a "ramification of it. These mountains are completely clothed with "forest from the top to the very bottom, and owing to consequent "sameness of tint and want of break or variety on the surface, they "form rather sombre features in the landscape, especially in cloudy "weather." The elevation of Dorjéling, according to Capt. Herbert's calculations, made from two observations, is 7,218 feet. Mr. James Prinsep calculated the height from 120 Barometrical observations furnished by Dr. Chapman, and taken with Instruments which were compared with the Standards at the Mint, and the result gives an altitude of 6,957 feet, thus the difference is 261 feet; it must however be remarked that Captain Herbert's observations are supposed to have been taken from the highest point at Dorjéling; those sent by Dr. Chapman to Mr. Prinsep on a spot considerably lower.

* Vide Asiatic Journal, March and April, 1830.


Chakoon
Rummun Nullah
Great Rungeet River
Goke
Camp
Ringalom Kop
Sutteear
Teguear
Var
Bubramsong
Tongchook
Seemeeong
DORJELING
7225 ft
Mondung
Chongkong
Tashaidingchook
Pudduchoo
Polongdong
Gonglah
Snow in winter
Kishambong
Camp
Rheng
Sandong Gorah
Undevaryzem Range
Scale 1 Br. Mile = 1 Inch.

THE APPEARANCE OF THE COUNTRY.

Captain Herbert describes the country in respect to natural scenery as inferior to Landour and Mussooree; the oaks and rhododendra of which are missed, as well as the picturesque outlines of the limestone precipices contrasting so well with the more swelling and undulating surfaces of the clay-slate. But that it need not fear a comparison with Almorah, which, with scarcely a single tree to break the tame outline of its narrow and steep ridges of mica-slate, had a most bleak and uninviting appearance. Dorjéling having been deserted for several years was seen to disadvantage by Captain H. but in his opinion would be found to improve on acquaintance. Captain H. considered that the part of the ridge called Ging, a little below Dorjéling, had even in its then neglected state great natural beauty: and gives us to understand that on the Sinchul Mountain will be found a great variety of forest scenery. He thought that it commanded probably one of the most magnificent prospects of the snowy range, visible any where; in which appeared eminently conspicuous, the peak Kunching Jinga, said to be 27,000 feet above the sea and supposed by some to be a volcano.

Colonel Lloyd's* impressions of the appearance of the country, are, that the country from four miles on this side of Ranneedanga, from the top of the Hills to the very bottom of the vallies, is clothed with a dense forest rather clear of underwood in the higher situations, but in the lower choked up with long rank grasses, small bamboos, and various brambles and thorny shrubs, but that wherever the large species of the bamboo occurs, there is seldom any other undergrowth than a light thin grass. He tells us that the interior of Sikkim is an accumulation of very steep mountains, separated by deep abysses so narrow at the bottom in general, as barely to allow room for the course of the torrent that rushes along them, but adds that there are a few of these ravines which have more space at the bottom, and may be called vallies, and that the base of these mountains is always the steepest part, and generally at the very bottom is

* Extract from his separate Note, dated 5th June, 1837.

almost perpendicular. Colonel Lloyd informs us that the spot on which Dorjéling is situated, has been cleared of trees; and the grass jungle, they found there on their arrival, was very light, and easily got rid of; that on the mountains to the northward of the place there had formerly been much cultivation, and that on the lower parts the forest chiefly confined itself to the deep dells and ravines, but that the Lepchas rarely continue to cultivate the same spot more than three years, and the vegetation on the lower situations is so very luxuriant, that on their abandoning a spot it is speedily covered again with jungle. The highest parts of the mountains are not cultivated, they are said to be too cold to permit any crop to ripen. From Dorjéling the view is bounded partly by the snowy mountains of the Himalaya, partly by a ridge of about 13,000 feet elevation, and partly by mountains of about 8000, from these last the ridge on which Dorjéling is situated emanates. The valley of the Teesta is the only apparent opening towards the plains from their basin, and down that valley (which is considerably to the eastward of Dorjéling, with a high ridge of mountain intervening) almost all the storms take their course. The country on the east of the main branch of the Teesta, called Tublung, Badong, and Gontake, is much better cultivated, and has more inhabitants than that on the west bank, but the whole country is very thinly populated when compared to the plains.

The soil of all these mountains is said to be very similar, and is composed of a reddish orange clay; rocks are occasionally met with, sand rarely occurs; except where springs of water issue from the Hills, and the only line is found in the form of Tuffa or Travertin deposited by some springs in the lower situations. The rock at Dorjéling is gneiss, and at the northern end of the ridge lower down near the banks of the Rinjeet River, slate occurs in great quantity, whether it might be made available for building purposes is doubtful. Iron ore, very rich and pure, is found at the foot of the Hills in the Morung. Copper is also said to exist, but there seems to be some religious prejudice against working any mines, otherwise there is no doubt valuable minerals might be found, as it is well known the same range of mountains produce them in Nepaul.*

* Vide Map.

CONVENIENCE OF SITUATION.

Captain Herbert lays no small stress on the convenience of the situation—it seems to be but 98 hours dawk travelling from Calcutta, and water carriage from June to September, at a distance of only 30 miles from the foot of the Hills, and during the remainder of the year Dulolgonge on the Mahanuddee, say 60 miles from the foot of the hills, is the place where boats are obliged to stop. Captain Herbert remarks* that for all Stations below Allahabad, Dorjéling is to be preferred to the Sanataria in the North Western Mountains, the distance of Allahabad being in a direct line from Dorjéling and Dehra, as nearly as possible equal, and about 400 miles. Even from Allahabad, Captain Herbert thought the Invalid's preferable course would be to Dorjéling; for this simple reason that he would have the advantage of water carriage as far as Malda with the stream, and for this same reason considered that even to stations above Allahabad, it might admit of question whether the western or eastern station of health be the preferable. It is true that as the Invalid has also to return, it may be said he will in either case have the stream in his favor once, and only once, but to the Invalid it is often, perhaps always of more consequence to reach his destination quickly, than to return, he having it always in his power to choose his time for the latter.

The following list of Stations with their direct distance from the foot of the hills at Dorjeling, will give a better idea of the advantages which the establishment of a Sanatarium at that place will be attended with, in this point of view.

	Direct Distance.	*Add one-seventh for Road Distance.*
	Miles.	Miles.
Dinajpore, ...	84 ...	... 96
Purneah, ...	88 ...	... 100
Rungpore, ...	97 ...	... 111
Malda, ...	130 ...	... 149

* Extract from Capt. Herbert's Brochure.

	Direct Distance. Miles.	Add one-seventh for Road Distance. Miles.
Bhagulpore, ...	133 ...	... 152
Moongyr, ...	153 ...	... 175
Berhampore and Moorshedabad, ...	190 ...	... 216
Tirhoot, ...	191 ...	... 218
Dinapoor and Patna, ...	218 ...	... 249
Kishnagur, ...	236 ...	... 270
Burdwan, ...	240 ...	... 283
Dacca, ...	254 ...	... 290
Bankoora, ...	268 ...	... 316
Chinsurah, ...	271 ...	... 310
Calcutta, ...	294 ...	... 336
Barrackpore, ...	282 ...	... 322
Dum Dum, ...	290 ...	... 331
Ghazeepore, ...	313 ...	... 358
Midnapore, ...	313 ...	... 358
Goruckpore, ...	317 ...	... 362
Benares, ...	351 ...	... 401

Captain Herbert tells us that water carriage may be had to within a very short distance of the foot of the hills, at least from the following principal Stations, viz. Calcutta, Dum Dum, Chinsurah, Berhampore, Dinapore, Ghazeepore and Moongyr. And that from the Ganges boats go up either the Mahanuddee or the Teesta, the former navigable in the rains for boats of 600 to 800 maunds to within twenty or thirty miles of the foot of the hills,* and the latter to a still less distance. Captain Herbert says that from these Ghauts there seemed to be no difficulty in making roads: little would be required beyond marking them out, but judging by the volume of the torrent where it quits the Mountains, Captain Herbert thought it navigable, at least to small boats, all the year round.

The itineraries,† &c. may be collaterally referred to on the above subjects.

* Is this correct? vide Dr. C.'s Journal, Sept. 10th, Appendix A.

† Vide Appendices A. B.

ROUTES AND APPROACHES.

Captain Herbert's* Route is delineated by the following Summary:

Dawk Stages.

Feb. 6,	8 P. M.	Left Calcutta.
„ 7,	2 P. M.	Reached Kishnagur.
„ 8,	5 A. M.	Arrived at Berhampore.
„ „	4 P. M.	Left Berhampore.
„ 9,	2 P. M.	Arrived at Malda, (stoppage two hours.)
„ 10,	2 P. M.	Left Malda.
„ 11,	5 A. M.	Arrived at Dinajpore.
„ 12,	3 P. M.	Left Dinajpore.
„ 13,	11 A. M.	Arrived at Titalya.
„ „	2 P. M.	Arrived at Homskwar Stockade.

Recapitulation.

Calcutta to Kishnagur,	...	18 hours.
Kishnagur to Berhampore,	...	15
Berhampore to Malda,	...	21
Malda to Dinajpore,	...	16
Dinajpore to Titalya,	...	20
Titalya to foot of Hills,	...	8
Total by Dawks,	...	98 hours.

Which at 3¼ an hour, ... = 319 Miles.

Captain H. thought that this must be very nearly the distance as Rennel in his book of Roads gives the distance of Calcutta to Delamcotta 344 miles, and argued that Delamcotta being from Calcutta in a straight line by the map, just 15 miles more than the entrance of the Nagree pass, the difference by the road must be about the same, which would give 329 miles: from this point, Dorjéling would be not more than 30 miles, (say 25) by the present road. Captain Herbert touches upon the nature of the approaches to

* Extract from Captain Herbert's Report.

Dorjéling in these terms, " are they situated in a healthy country, and with access always open; or do they pass through a malarious tract, through which it is safe to travel only during certain months in the year?"

Captain Herbert thought he might establish some presumptions on the subject, and that by comparing the features of the routes to Simla, to Landour, and to Almorah, with those of the approach to Dorjéling, an opinion might at least be hazarded. He says that of the three, only the last is reckoned dangerous at any season, and the danger* is supposed to arise from a tract of jungle extending eighteen miles from Bhumowree, which is immediately at the foot of the Hills to Tonda in the plain country. In the approach to Simla, or rather to Subathoo; and to Landour, or Dehra, there is no jungle. In the approach to Dorjéling there is a tract of open forest to pass through, extending not more than eight miles. As far then as the question of forest determines that of malaria, there would appear to be grounds for suspicion. It is at the same time to be noted that the subject of malaria is not yet clearly understood, and there are instances even where forest has been supposed to be beneficial, and the cutting down of it detrimental.

Captain Herbert was of opinion, and many medical men agreed with him, that it was not the forest that was to be dreaded on the road to Almorah, but the cleared tract south of it known as the " turaee." He stated in explanation of the grounds of this opinion that the forest tract formed a kind of shelving bank lying against the foot of the Hills, composed of gravel and sand, or what geologists call diluvial deposite. The declivity of this bank was considerable, and partly owing to this circumstance, partly to the nature of the materials, it was in a remarkable degree a dry tract, so much so, that in the last fifteen miles, between Bhumowree and Landah no water was obtainable. But again the turaee having a soil of loam of no great depth resting on clay, and being at the foot of this stony bank formed a receptacle for the streams and springs which must pass under it, in fact for the drainage of the Hills. It

* Would not digging wells remove the danger, an experiment attempted with success in Central India ?

had therefore in the driest weather, a moist soil; hence indeed its name (from "tura" moist). This is the tract in which all the danger is supposed to reside, and Captain H. adds that there were some views brought forward lately at home by a Mr. Addison which went far to strengthen this opinion of his.

The forest on the road to Dorjéling has the same character as that above described; although from being narrowly limited by two rivers (the Bulasun and the Mahanuddee) it has no marshy tract beyond it, none at least like that lying about Roodurpoor in the Almorah quarter. On the contrary it is high and dry and to appearance most promising. Judging from appearance Captain Herbert apprehended no danger in visiting Dorjéling at any season. But if it should be thought otherwise, he considered, that it would be very easy to arrange matters so as to allow the traveller to pass without stopping, from Titalya to Dorjéling, or at least to such an elevation as should be considered perfectly safe,* and further intimates that a very exaggerated idea has prevailed of the danger of traversing the Almorah turaee and jungle as proved by several instances of travellers passing through it with impunity even at the worst season, while even by those most prejudiced the danger is confined to passing the night within the suspected tract.

Captain Herbert finally, to give a better idea of the nature of the approach to Dorjéling, says "it is very nearly as promising as that to Simla, it is much more so than to Dehra, and between it and the Almorah one there can be no comparison whatever, as the most unpractised eye would pronounce the latter to be dangerous." Of the whole line from Calcutta to Dorjéling, he rather objected to some part of the road near Malda and Dinajpore, than to the tract at the foot of the Hills which appeared as little suspicious as any road he ever travelled; and presumed that as at Malda and Dinajpore Europeans reside all the year round, if no part of the road be worse than those stations, the traveller need not apprehend any danger in whatever month he visit Dorjéling.

Captain Herbert thought that to do justice to the plan of establishing a Sanatarium, it would be essential to construct a good road

* Dr. Chapman perfectly concurs in this opinion.

from the foot of the Hills to Dorjéling, and that for the execution of such a work there were facilities in the arrangement of the ground, which were not to be found at any of our other mountain stations, and proceeds to state that Sinchul, the mountain of which Dorjeling is but a spur or ramification, is the principal elevation in that quarter. The highest summit (about 8,500 feet) is a few miles south of Dorjéling:* from that summit proceed in every direction, similar branches all gradually decreasing in elevation, and amongst these one takes the direction of the Nagree pass or debouche of the Bulasun River, sinks gradually into the plains having a fall of about 7,000 feet in say 25 miles; in all this line (which however is not a straight one), there is no break, ravine or valley—the declivity is uniform and regular. Here there seemed to Captain H. an opportunity of having a most practicable road with a continued and easy ascent the whole way from the plains to the station. The ascent would be 280 feet in a mile, if evenly distributed, or one foot in eighteen, a slope so easy that it would be practicable for wheel carriages.

This Captain Herbert thought would be such an advantage combined with the facilities for water carriage from the different stations, that the place could not but thrive, and become of very great importance, and opined that the Sanatarium would become the nucleus of a very flourishing town which would in time grow up about it; but adds that in the construction of such a road the assistance of the Lepchas would be very desirable. The approach Captain Herbert travelled by was by the bed of the Bulasun river which in the rainy season he thought impassable, and even were it otherwise the line offered in his opinion so little facilities for the construction of a road (to be practicable even to horses) that were there no better line the project must be at once abandoned.†

But the case being otherwise, and so eligible a line offering, thus giving the place an advantage which no other Hill station possessed, it seemed to him evident that Government could not begin too soon after determining on the establishment of a station, in

* Dr. Chapman assumes that from this summit to Dorjéling it would be scarcely possible to make a carriage road, but that a good cattle road might easily be constructed.

† In this Dr. Chapman entirely coincides.

examining this line in detail, and in fact tracing the road. This preliminary appeared to him necessary for though the map of the country prepared by the late Capt. Weston,* represented a continuous ridge stretching from the summit or centre peak of Sinchul, and though his observation as far as it went confirmed this fact, yet it would be impossible to say without actually following out the line of road what would be the character of the tract, and what (if any) would be the difficulties of the task.

Mr. Grant's memorandum, dated 21st April 1830, on the approaches and roads shews that at that date two roads lead into the Sikim country, viz. by the Nagree pass, and by Sabbook Golah; a third by the Mahanunda had been deserted, and overgrown with jungle.

It further shews that the road by the Nagree pass lies to the westward of Sinchul, and that the bed of the Bullassun river may be called the road a great part of the way. Whilst it has the advantage of being more direct, its disadvantages are first that it is only passable at certain seasons, for in the rains the river becomes a torrent that fills the valley from side to side; secondly, as it lies in a deep hollow between high mountains it must be very unhealthy in hot damp weather; and it could only be made passable at a great expense as the cliffs approach close to the stream in many places, and would require to be cut away.

The road by the Sabbook Golah is more circuitous, more rugged, and has the same disadvantages of lying across deep vallies. Mr. Grant spoke of roads for want of a suitable term, but it must be understood that they little deserved the appellation. Mr. Grant proceeds to point out where a good road could be made; he says that a few miles from the Nagree pass at a place called Russuddhoora, and near where the Bullassun breaks into two streams, a ridge commences, rising gradually as it runs north until it joins the southern base of Sinchul. The road ought to be carried along this ridge, and wind at once up the southern and western sides of the mountain, until it gets above all pestilential vapours; when it reached an elevation of six or seven

* Vide Map.

thousand feet, it might be carried nearly in a level the remainder of the way.*

The advantages attending this plan would be the avoiding of all vallies, and by going high up not only are the sides generally less rugged, but there would be no torrents to cross; moreover the vital advantage of soon reaching a cool climate seemed worth almost any sacrifice.

Mr. Grant says that the road from Seebgunge on the Ganges to Tetalyah via Dinagepore could easily be made passable for carriages at all seasons of the year, and that boats navigate the Mahanunda river during the twelve months as high up as Dulol-gunge or Nawabgunge, which is east from Poorneah, and from this place the road could easily be made good.

From Tetalyah to the Hills the distance is about 25 miles; the ground is high and the remains of a road to Russud-dhoora are still visible.

After leaving Tetalyah there ought to be no stop made by invalids until they reach the Hills—a great part of the country is cultivated it is true, but it is said to be unhealthy near the forest, and as the distance is so short there is no occasion to run any risk.

Colonel Lloyd† adds the following description of the roads and approaches:

"Taking my departure from Titalyah the position of which I presume to be sufficiently well known, I shall merely mention that it lies in North Latitude 26° 30′ and in East Longitude 88° 21′ on the banks of the Mahanunda, a river navigable in the rains for boats of 500 maunds burden as far as six miles north of Titalya. From Titalya there is nothing different to be remarked in the road from other roads in Bengal until arriving at Ranneedanga in the Sikim Morung; after leaving this place the road traverses an elevated, sandy and gravelly bank about four miles to the commencement of the saul forest; through the forest the ground continues of the same character, but is clothed with long grass as well as trees—there appears to be no swamp. The course of the road is parallel to the Balasun river, the principal feeder of the Mahanunda, and in

* This agrees with Captain Herbert, and Col. Lloyd.

† Extract from Colonel Lloyd's separate note, dated 5th June.

about four miles after entering the forest the road crosses the Balasun, and proceeds along the left bank as far as Tippera Munny, where it enters the bed of the river at the foot of the Hills. Thus far wheeled carriages can come at present, and most of our supplies were brought to this place upon hackeries. From hence the present road is wretchedly bad, scarcely practicable for cattle unloaded, until reaching Samdong. It passes over various steep, ridges, spurs from the Naggree Hill, and among the large rocks and stones in the bed of the river, and although the direct distance from Tippera Munny to Samdong, can be little more than eight miles, it takes two days fatiguing march to accomplish. This line of road may also be considered as liable to malaria, particularly in the rainy season. If Dorjéling is to be resorted to as a Sanatarium a different line of communication must be found, and there is every reason to believe an eligible one may be obtained by avoiding Tippera Munny, and ascending an elevated ridge, or plateau called Punkabarree, which is met with immediately after crossing the Balasun, and which rises with a very gentle slope to the foot of the Sinchul Hill, along the ridges of which Hill a road may apparently be easily constructed to Dorjéling. From Samdong the road improves, proceeding along a gradually ascending ridge till it arrives at the top of Sinchul, an elevation of about 8,000 feet; parts of this road are sufficiently steep, but as it will not form any portion of the proposed new line it is unnecessary to notice it any further. At, or somewhere near this part of the Sinchul ridge, the proposed new line would join the present road, and with the exception of one descent for a short distance, and a subsequent ascent, it is generally on a descent all the rest of the way to Dorjéling."

Dr. Chapman's* distinct memorandum informs us, that the distance from Titalya to Teprah Munni which is within the Naggree pass, and with an elevation of above 1200 feet may be estimated at 24 or 25 miles, if however a new road be made to Dorjéling in the proposed line, the direct ascent of the Hills would commence immediately after crossing the Balasun river, which is distant from Titalya about 20 miles; Dr. Chapman states

* Extract from Dr. Chapman's separate note, dated 5th June.

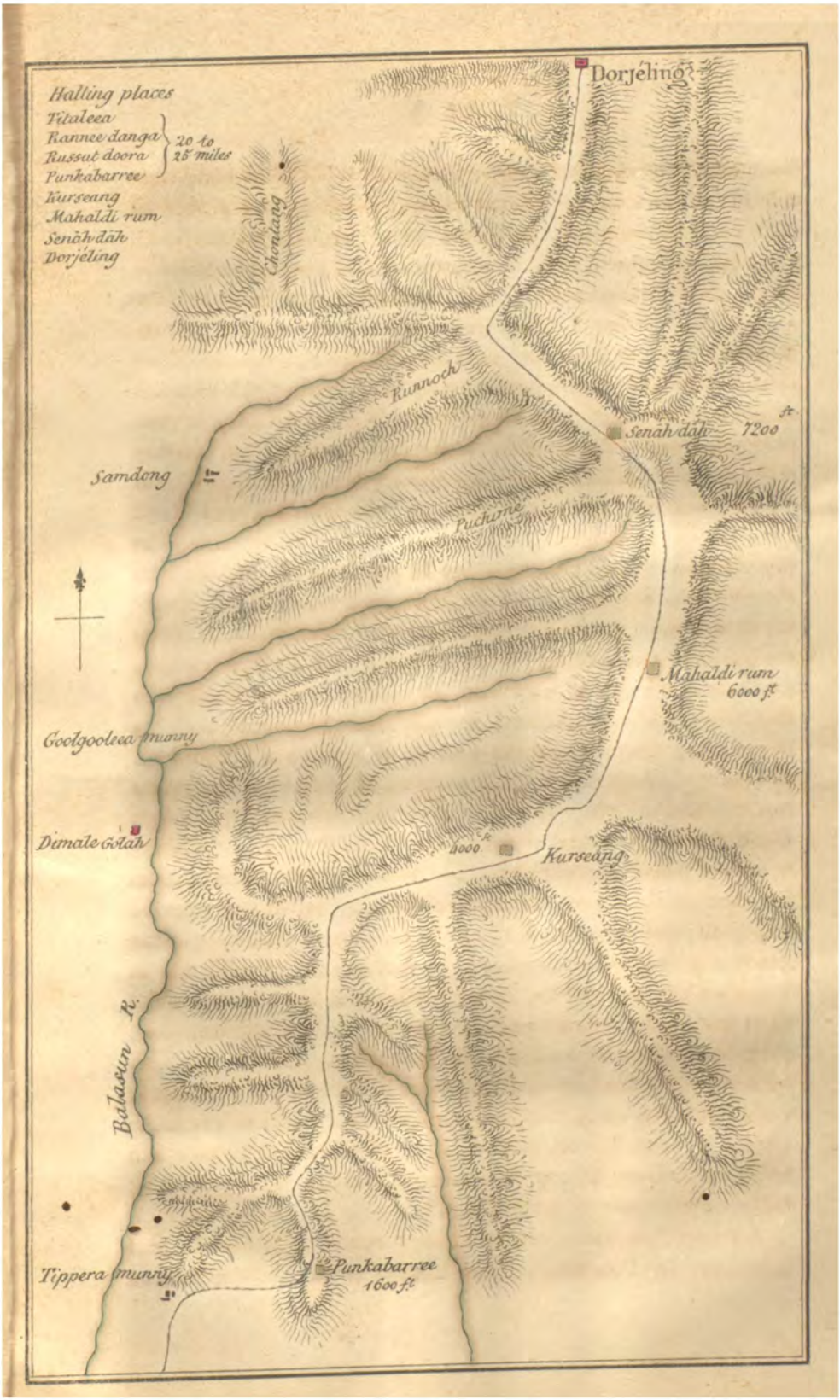
that the first six miles of the road from Titalya, run in a northerly direction through a well cultivated and thickly inhabited country, and close to the east bank of the Mahanuddee river, to the village of Cossimgunge: and are quite practicable for wheeled carriages of every description, and capable of being kept in good repair at little cost; passing through Cossimgunge, and crossing to the west bank of the Mahanuddee, (this river is fordable in the cold and dry seasons,)—the road enters the Sikim territory, and is continued on the bank of the river for about a mile, and then proceeds in a nearly straight direction to Raneedangah, a dry and elevated spot close to a rapid rivulet, twelve miles from Titalya—the country between Cossimgunge and Raneedangah is neither so well cultivated, nor so thickly inhabited, as on the opposite side of the river—leaving Raneedangah, the road proceeds in a northerly direction through a scantily peopled, and ill cultivated tract, for a distance of about three miles, then enters the Morung forest, and all cultivation ceases from this point—the direction of the road is north-north-west, and north-west, and the distance to the Balasun river not more than five miles—as far as this river loaded hackeries can travel without difficulty during the dry seasons—but possibly the road after entering the Sikim Morung may not be passable for carriages during the rains, but might easily be made practicable at all seasons.

Dr. C. says that the Balasun, a rapid stream of considerable breadth, is fordable the greater part of the year, but would require a bridge thrown across to maintain an uninterrupted intercourse between the Hills and plains in the rainy season; and that the depth of water can never be very great, as the banks which are composed of loose stones, have but a trifling elevation from the Balasun; whilst the road which is still very tolerable, runs in a N. W. and N. direction through a thick forest, having but little undergrowth, and with a gradual ascent to Teprah Munni, a resting place on the left bank of the river, and about 50 or 60 feet above its bed. Thus far in Dr. Chapman's opinion there is nothing in the road, or in the nature of the country through which it passes, to prevent a safe and constant communication, being kept up between the Hills and plains at all seasons of the

year, the question of the salubrity of any particular tract of country is one which general experience alone can decide—but in this particular instance Dr. Chapman thought there were fair grounds for forming an opinion. He proceeds "the first fifteen miles of the road running through a country thickly inhabited and cultivated, and to all appearance of a more favorable description than the environs of many stations in Bengal, might be considered perfectly unobjectionable, at least as far as travelling is concerned; thus leaving not more than nine or ten miles of what may be considered the questionable ground to be passed over to Teprah Munni by the present road to the Hills; but to the point where the direct ascent of the mountains would commence by the proposed new road, the distance does not exceed six miles—two or three miles of the forest nearest the plains is already much cleared, and the ground covered with grass jungle, but not of a very luxuriant description,—for a considerable distance before entering the forest, and the whole way to the Balasun, the soil is of a loose sandy nature with a large admixture of stones, and gravel, and has an observable slope towards the plains, and is intersected by several small nullahs (quite dry early in November); it consequently does not admit of the lodgment of water, and it results, that there is little if any swampy ground on the route, such as is said to be met with at the foot of the Nepal and Bhotan mountains. That the forest tract south of the Sikim mountains is not so unhealthy, as that to the north-west and east is partly proved by the fact of it being frequented throughout the year by the Mechees, a tribe of people distinct from the inhabitants of the Hills or plains; they are a robust and hardy race, and certainly carried no evidence of disease in their persons or appearance." But admitting the last few miles of the road above described to be unhealthy, Dr. Chapman considered the distance so inconsiderable that it might at all seasons be traversed without risk, by parties so arranging their departure from Titalya or elsewhere, as to allow of the objectionable five or six miles being crossed during the early part of the day at a time when it has been proved by experience that many tracts of the most unhealthy country may be travelled through with safety—an ascent of 3 or 4000 feet could with ease be attained before evening, if a road be made in the contemplated

direction. Dr. Chapman thought little need be said regarding the present communication between Teprah Munni, and Samdong (two marches), the natural difficulties to the formation of a good road being such as must lead to the abandonment of that route independently of its running through a tract of country which must be extremely unhealthy during a considerable portion of the year. From Samdong to Tekri Bong, one day's journey, the road is a continued ascent, and is in many places excessively steep, but might, if occasion required it, be greatly improved—the same remarks apply to the portion of road between Tekri Bong and Oongool, but further notice would seem unnecessary, as in the vicinity of the latter place the proposed new road would commence towards the plains; from Oongool, to Dorjéling, a distance not exceeding six miles, the present line of communication would not be relinquished; it is therefore necessary to be more particular in its description. Leaving Oongool, the elevation of which is a trifle greater than Dorjéling the road runs for above a mile up the south side of a very precipitous mountain to a height of 8000 feet, and then descends on the northern side for a considerable distance through thick forest and jungle; a second sharp ascent brings you to the top of the ridge at the northern extremity of which Dorjéling is situated, this latter portion of the road (about three miles) is a gradual descent. To render the road from Oongool to Dorjéling passable for loaded cattle it would be necessary in certain places to make some deviations from the present path, but there do not appear any serious obstacles to the construction of a good road between the two places, though possibly not one practicable for wheeled carriages. The country from the Morung to Dorjéling may be described in few words, it is one dense forest—varying in character according to elevation and aspect, the lower parts particularly between Teprah Munni and Samdong having a rank and luxuriant undergrowth; there is not a sign of cultivation, nor a single habitation to be seen in the whole distance excepting the few huts at Dinaligolah, a place where the Bengalees and hill people resort to, from December to May, for the purpose of bartering their several commodities.

A further detailed expression of the views of Lieutenant-Colonel Lloyd and Dr. Chapman on this head is contained in their joint


Halting places
Titaleea
Rannee danga
Russat doora
Punkabarree
Kurseang
Mahaldi rum
Senah dah
Dorjeling
20 to 25 miles
Chintang
Dorjeling
Runnoch
Senah dah
7200 ft
Samdong
Puchumi
Mahaldi rum
6000 ft
Goolgoolea munny
Dimate Gotah
4000 ft
Kurseang
Balasun R.
Punkabarree
1600 ft
Tippera munny

reply dated 5th September, to a requisition from Government that they would state the further suggestions they might have to offer for the adoption of Government with a view to rendering Dorjeling an efficient Sanatarium. They specify the measures necessary to be carried into effect with reference to the subjects of the present chapter in the following terms:

"The lines of approach to this place by land from the different parts of the country would be via Rungpore from the south-eastern part of Bengal, from the south via Dinagepore, and from the westward via Purneah and Kissengunge. By water the route would be from the Ganges up the Mahanunda river as far as navigable, and from the spot thus attained the remainder of the journey must be performed by land.

"All these routes must unite at Titalya, and it is assumed that there are good and practicable roads for travellers to all those places, namely, Rungpore, Dinagepore and Purneah, and from the latter a tolerable one to Kissengunge. From Rungpore there is an excellent road to Titalya, kept in good order; from Kissengunge to Titalya there is a road, but in very bad condition, and it will require considerable repairs; from Dinagepore which is the most direct line from Calcutta and by which route the post is at present conveyed, there is no road at all, consequently that route will require the construction of one, and it should diverge from the existing road between Malda and Dinagepore at or somewhere near the village of Birowl which is about four miles west from Dinagepore. It may however admit of some doubt (and the point ought to be ascertained) whether it would not be better, as saving the necessity of erecting bridges, that this road be commenced from a point of the Malda road on the western side of the Tanquin river near Putter Ghatta, and carried due north from thence to Titalya, without going near Dinagepore. With respect to the route by water in the dry season, the loaded boats of mahajuns, always come up as far as Dulolgunge, one march to the southward of Kissengunge, and from that point a good road is required to Kissengunge (at present there is none.) As to the distance up the Mahanunda which boats might proceed in the dry season, that must of course depend upon the draft of water; after the rise of the river

in the rainy season 800 maund boats loaded came to Calleagunge, within sixteen miles of Titalya and 300 and 400 maund boats beyond Titalya to Sungapeecotta, the rapidity of the current deters the boatmen of the larger craft from proceeding further than Calleagunge, though there is a sufficient depth of water for them even beyond Sungapeecotta. The travelling distance of Rungpore from Titalya is about ninety miles; of Dinagepore seventy; of Kissengunge thirty-six; and from this last to Purneah is about thirty-six more.

"From Titalya the construction of a road for three-fourths of the distance to the foot of the hills, and the erection of about four bridges, (wooden) is indispensable; and this work might be effected in a short time by the prisoners from the jails of the neighbouring zillahs. The stones which at present block up the old bed of the Balasun river near Russuddoora should be removed, and made use of to bank up the mouth of the new channel, and thereby turn the stream into its old course; by this means the necessity for a bridge at that place will be obviated. Should this prove impracticable, or unavailing in diverting the stream it will be necessary to construct a chain, or suspension bridge at Russuddoora, or the road must be carried round by Silleegoree to be practicable during the rains, which would considerably increase the distance."

Colonel Lloyd and Dr. Chapman considered that from the foot of the Hills to this place, the road should be constructed under the superintendence of an Engineer, and a party of Sappers and Miners; remarking that whatever description of labourers are employed in the work, they will require to be superintended by persons who may be able to point out the manner of proceeding; for nothing could be efficiently accomplished unless by the employment of an Engineer and party of Sappers and Miners; as being people instructed in similar operations, and who by their example and working with the labourers, as well as superintending, would ensure the accomplishment of the object in view in a much shorter space of time (consequently at less cost), and in a more efficient manner.

It was added that at Dorjéling roads of communication would be required, and might be constructed by labourers entertained for that purpose, and for clearing away the forest.

It was stated to be requisite to construct staging bungalows or halting houses at the following places:—One large one at Titalya (plenty of materials to be had here from the ruined lines, and what is not required for building might be used as metal for the road) ; one at the foot of the Hills—another after topping the first ascent at about 3,000 feet elevation, and perhaps another may be required half way from thence to Dorjéling.

In acknowledging this communication Government sanctioned the cutting down of the forest in the neighbourhood of Dorjéling, and with respect to the contemplated construction of the road from the plains to Dorjéling, Colonel Lloyd was requested to communicate with the Indigo Planters and other gentlemen in the neighbouring districts, as to the practicability of following their example in obtaining Hill labourers from Ramgurh, in the event of that Officer being unable to procure them from Nepal, and authorized the expenditure for necessary implements. That Officer informed the Government that he considered it expedient to try the experiment above proposed by Government, whether able or unable to procure Nepaulese labourers.

The Governor General whilst at Buxar, further intimated to Colonel Lloyd, that in the event of its appearing that grants of land were eagerly sought after, he should receive authority to construct the line of road selected and recommended in his communications, so as to make access easy, and should be supplied with an European Serjeant and Corporal with a detachment of Sappers and Miners to be temporarily stationed at Dorjéling, and the Government is prepared to issue the necessary orders for all these arrangements, *the instant that public feeling unequivocally manifests itself in favor of the occupation of the Sanatarium.*

CLIMATE AND EFFECT ON INDIAN DISEASES.*

Captain Herbert premises by stating that his enquiries were of course confined to the subject of temperature, as the distribution of the seasons must be the same in all places situated south of the great Himmalaya chain—whether in the plains or in the mountains; Dorjéling must like Calcutta have a cold, a hot, or rather warm and

* See Appendices C and D.

a rainy season; the question is, what is the temperature of these seasons, or rather of the warmest months in the year ?*

Captain Herbert proceeds to state that it is now sufficiently well known, that in places situated under the same parallel of latitude it is practicable to estimate accurately the differences of climate as far as temperature is concerned, by their differences of elevation, and that by comparisons made between different climates it is satisfactorily established (in India at least), that as we ascend in elevation the temperature of the air falls at the rate of about 1 for every 300 feet.

Captain Herbert goes on to argue that the elevation† of Dorjéling above Calcutta being 7218 feet,‡ he might confidently reckon on a mean temperature 24° below that of Calcutta. The mean temperature of Dorjéling might be in his opinion even a little lower on account of its having a higher latitude by nearly 5°, and a northern aspect; adding that the same estimate may be applied to the mean temperatures of each month with a similar allowance in favor of the place for the difference of latitude, even to the mean maximum, and mean minimum heat of each month, and that under this view, some of the most interesting of these theoretical, yet not hypothetical deductions might be tabulated as follows.

¿ *Comparative Temperatures.*	*Calcutta.*	*Dorjéling.*
Within Doors.		
Mean temperature of the year, ...	78°	54°
Mean temperature of hottest month, ...	87	63
Mean temperature of coldest month, ...	65	41
Mean maximum temperature of hottest month,	93	69
Mean minimum temperature of ditto, ...	81	54
Mean temperature of rainy season, (July, August and September)	83	59
Maximum temperature (June), ...	95	71
Minimum temperature (January and Feby.),	62	38
Out of Doors.		
Maximum temperature, ...	101	77
Minimum temperature, ...	48	24

* Dr Chapman's idea is that as far as mean temperature is concerned every thing is in favor of Dorjéling.

† The elevation would appear to be 7000 feet by Mr. Prinsep's calculations.

‡ This would give a difference of 25 degrees.

¿ Vide Appendix D.

Thus Captain Herbert remarks it is obvious that the mean annual temperature of Dorjéling (54°) is only two degrees above that of London (52°); it is 11° under that of the coldest month in Calcutta, even the mean temperature of the hottest month there (69°) is little more than that of our cold weather (65°), which is always found to restore our invalids for the time. The above results Captain Herbert thought certainly would bear a reduction of two or three degrees for the reasons before mentioned, and as a proof of this, mentioned that during the two days of his stay there (the 18th and 19th February,)* the range of the thermometer was 34° to 44° giving for those two days a mean under 39°, though considerably past the time of the coldest month; which by the preceding table should be 41°.

The following table by Captain Herbert, shows the elevation of the several stations of health in the mountain provinces to the north-west, in comparison with Dorjéling, by which it will appear that only one of them, Simla, has the advantage of superior elevation; and this only by the small quantity of 268 feet amounting scarcely to a single degree of temperature! Over Almorah Dorjéling has the advantage of 1700 feet, being equivalent to six degrees of temperature nearly. As to the higher latitude of those stations the difference is only 3°, and it is probably more than counterbalanced by the northern aspect which is wanting at Simla and Landour or Mussooree.

Comparative Elevations of Stations of Health within the Mountains.

Simlah.	*Landour.*†	*Almorah.*	*Dorjéling.*
7,486	6,500	5,520	72,118

Mr. Grant in 1829 tells us that he was not very competent to judge of the healthiness of Dorjéling, but that it was formerly a place of some note, had been deserted since the Goorkahs left the

* It must be borne in mind throughout, that Captain Herbert's was but a cursory visit.

† The exact elevation of Landour Captain Herbert had not been able to refer to, but it is very little if at all higher than the site of the Botanic Garden near it (Mussooree), the elevation of which is as above.

country, and was overgrown with forest and underwood, which however could soon be cleared away. He quotes Dr. Jeffreys as mentioning that fever and ague disappear amongst these mountains at an elevation of 6000 feet, and that if he was correct Dorjéling would be exempt as it is above 7000, and a greater can be obtained if wanted; but Mr. Grant suspects that would be *too cold*. He observes that the country in general cannot be unhealthy, as the natives are stout and rather fair, instances of colour in the cheeks of the women and boys being by no means uncommon, and some of them obtaining the age of a hundred years. Mr. Grant once met the father of a Lama who told he was ninety-eight years old, yet from one end to the other, the country is covered with thick forest.

He was informed that in August and September, fevers were common, but the places pointed out were at a lower elevation than Dorjéling; there was no appearance of sickness amongst the people he met, and he was led to conclude that, although fevers might be troublesome where the houses were placed at low elevations, yet after a certain height even thick forest ceased to be dangerous.

Colonel Lloyd's and Dr. Chapman's opinions in their joint six-monthly Report dated 5th June, 1837, are thus expressed—

"The climate of Dorjéling during the time we have been here has been every thing that could be wished. The fullest information on this subject is contained in the meteorological register* kept by Dr. Chapman, the mean temperature for the last six months has been 48°, that of London for the same six months of the year is stated in the British Almanac (which, however, appears to be too low) at 43° 5′, which would make this place four and half degrees warmer than London, but it would require a longer experience to be enabled to ascertain correctly the real difference: this approximation may however suffice to give some idea of the climate."

Colonel Lloyd's distinct ideas on the subject are, that the climate of Dorjeling is a very agreeable one, the state of the atmosphere generally dry, sometimes excessively so: the cold in December and January bracing to the feelings, and stimulating to exercise; with

* Vide Appendix D.

strong winds and hazy weather in March and April, and occasional light showers with distant thunder and lightning in May. He saw fewer storms than might have been expected; it would appear from being banked in as it were by higher mountains from the N. E.* quite round to the W. S. and E. S. E., that the more severe and general storms go down the valley of the Teesta, which is the only embrouchure they have towards the plains; and general storms passed that way, the thunder and lightning of which he heard, and saw while the atmosphere at Dorjéling was free from clouds, and if at night the sky was bright and clear with moon or starlight. The mountains to the southward being higher than this, had certainly in his opinion a great effect in stopping the accumulation of vapours from the plains; and from thus leaving no vent for the storms to the south, had great influence in moderating their violence, and turning them off to the eastward. Colonel Lloyd adds, that so full and accurate a register and journal of the weather had been kept by Dr. Chapman that it left no room for himself to make any further observations on the subject.

Dr. Chapman's opinion was that it was scarcely possible to speak too favorably of the climate of Dorjéling during the first six months of his stay there, *i. e.* from 1st December 1836 to May 31st 1837; the air was generally dry, and bracing, imparting a feeling of increased vigour, and desire of active exertion. Dr. C. says that considering the elevation of Dorjéling to be 700 feet, and allowing a diminution of 1° of temperature for every 300 feet of ascent, the mean temperature should be between 23 and 24 degrees lower than that of Calcutta; adding that a comparison of the meteorological registers† kept at the two places would probably show the difference to be greater, than can be accounted for by the mere difference of elevation, and that the explanation must be looked for in the high latitude of Dorjéling, and its having an aspect open to the north as far as the snowy range. The temperature of the water at the springs was found to be 55° on that side of Dorjéling, and 57° on the south; the observations were taken one day before sunrise and on another occasion at noon.

* Vide Map.

† See Appendix D.

Dr. Chapman adds, that the following Table will shew at one view, the temperature and state of the atmosphere at Dorjéling for the six months:

	Mean of the Barometer.	*Mean temperature of day between 10 a. m. and 4 p. m.*	*Mean temperature of the 24 hours.*	*Mean temperature of an evaporating surface in the day.*	*Mean minimum temperature.*	*Mean maximum temperature.*	*Mean daily range.*	*Rain—Inches.*
1836, December,.....	23.365	40.2	43 3	38 9	35.	51.6	16.6	0.25
1837, January, ...	.310	42.7	40	38.2	32.8	47.2	14.4	*0.20
„ February, ...	.305	44.5	42.1	41.5	34.2	50.	15.8	†0.52
„ March, ...	.307	55.9	50 8	48.8	43.1	58.4	15.3	0.10
„ April, ...	.280	60.6	55.9	52.9	48 1	63 7	15 6	1.93
„ May, ...	259	60.7	56.6	56 8	50.	63.3	13 3	6.10
Means of six months, ..	23.305	51.8	48.1	46.2	40.5	55 7	15.2	9.16

Dr. Chapman proceeds—"the weather in December was most "delightful, the atmosphere dry, and generally brilliantly clear; "bright sun shining days and unclouded nights. The ground at "sunrise usually covered with hoar frost and ice formed on water "exposed at night in the air. Winds at sunrise and the early "part of day generally from N. E. at noon, and in the evening W. "or S. W.

"‡The early part of January was remarkably fine; on the morning "of the 10th there was a thunder storm and heavy falls of snow "which covered the ground to the depth of a foot or more, and some "of it remained *unthawed* above a week, the latter part of the month "proved severely cold. Hoar frosts and ice every morning except-"ing on the 1st and 22d, winds in the morning northerly during "the days and in the evenings W. or S. W.

"February was a very cold month, the days frequently overcast "and gloomy. Snow fell on the 13th and 16th about two inches "each time. Hoar frost and ice nearly every morning. On the "morning of the 15th the Thermometer was as low as 25.5, wind

* In January above a foot of snow fell.

† In February about 4 inches fell.

‡ See Appendix C.

" usually from N. or N. E. at sunrise; N. W. and S. W. during the " days and evenings.

" In March the weather was very agreeable, the atmosphere " generally clear and dry, and tem perature pleasant; the frost which " was rather severe in the early part of the month gradually became " less so, and entirely disappeared towards the conclusion. Winds " frequently northerly at daybreak, and almost invariably from " W or S. W. during the days and evenings.

" On the 2d of April we were visited by a severe thunder storm " accompanied with rain and heavy hail; the remainder of the month " was fine and atmosphere dry, the mornings and early part of the " days were frequently calm and sultry, and exposure to the sun at " such times was very disagreeable; the inconvenience however " seldom extended to so late as noon; the temperature as day " advanced being rendered pleasant by breezes from S. W. W.; " towards the end of the month the atmosphere became loaded " with dense haze, by which the distant mountains were entirely " hidden, and the nearer frequently obscured. The wind generally " from the S. W. and W. during the days and evenings, mornings " frequently calm.

" Early in May a decided change of weather took place, heavy " clouds began to collect on the neighbouring mountains, showers " were frequent, and thunder storms of almost daily occurrence; the " weight of the storms however generally passed off to the north " or south of Dorjéling, and the rain fell in moderate quantity. " Vegetation which had hitherto been exceedingly slow, now began " to make more rapid progress; the latter part of the month was " foggy—the morning generally calm. Wind during the rest of the " day usually W. or S. W.—altogether May proved a very pleasant " month, the frequent showers followed by bright sunshine forcibly " reminded us of April weather in England, but we have not experi- " enced one day of continued rain since our arrival at Dorjéling." According to Dr. Chapman in the essential points of temperature and general condition of the atmosphere, Dorjéling appears to possess the qualities constituting a good climate for at least six months of the year; and although the place is at present encompassed by dense forest and decaying vegetation, no fear can be entertained

regarding malarious exhalations, at an elevation of 7000 feet with a corresponding low temperature. The uneven surface of the ground does not admit of the lodgment of water, which after the heaviest rain is rapidly carried off into the deep surrounding vallies. These deep vallies at the bottom appear to be little else than courses for the several rapid streams which flow into the Teesta, east of Dorjéling. Dr. Chapman knew of the existence of no swamps at the base of the hill on which Dorjéling is situated, even if there were such their immense distance below would render any exhalations from them harmless as far as the place itself was concerned.

Dr. Chapman thinks that it must be admitted that the mountains to the south-south-west and west materially modify this climate; during May thunder storms were of almost daily occurrence in their immediate neighbourhood generally from S. W. to N. W. these on approaching Dorjéling appeared with few exceptions to be diverted from their original direction, and passed either to the north or south into the valley of the Teesta, and were frequently observed to divide, half going in the one direction, the other in the opposite, and thus while encircled by storms there was a clear sky at Dorjéling, or merely a shower of rain fell. It might fairly be expected the said mountain skreen would always afford considerable protection from the violence of the rainy season.

Dr. Chapman describes Dorjéling to have been singularly exempt, up to the period in question, from the dense, and continued fogs so frequent in the Cossyah Hills, and many other mountain ranges. The prevailing winds from December to May were W. and S. W. during the day frequently N., and N. E. early in the morning. It may appear rather singular that the atmosphere was observed to be much warmer, when the wind was steady fro m the north and direct from the snowy range, than when blowing from other quarters.

Dr. Chapman adds a few observations on the health of his party after they left Titalya. Early in November he was unavoidably detained many days in the worst parts of the jungle at the lower parts of the Hills, and the anticipated consequences resulted—many of the Sepoys and their followers were attacked with inter-

mittent fevers on their progress upwards. The men however all rapidly recovered on their arrival at Dorjéling; during the severe cold weather in January and February several Sepoys suffered from Dysenteric attacks; and latterly some came under treatment for intermittent fever. The servants and other natives from the plains generally continued well during these six months. The Sepoys certainly appeared very obnoxious to disease, but taking into consideration that these men (all Hindoos) were suddenly deprived of their usual diet, and by necessity compelled to use one of a nutritious nature, the impossibility of varying it, their custom of cooking only once a day, their penurious habits allowing them a bare sufficiency of food, owing to the high price of their provisons, the very imperfect shelter afforded them in common with all the party, during the coldest weather, and the discontent they all along manifested, sufficient cause will appear for their having been the greatest, and latterly the only sufferers. One Sepoy, an aged man, died suddenly on the 31st of May; he had for some time been labouring under an affection of the chest.

In continuation of his remarks on Dorjéling climate from December 1836 to June 1837 Dr. Chapman submitted some further observations on peculiarities of the climate for the following three months. He stated that the favorable weather they had experienced since their arrival in December 1836 continued to the middle of June, when the rains might be considered to have commenced, being probably rather later than usual as in other places last season, and from that time to the 18th of August they witnessed a continuance of rain and fogs with but few, and very short intervals of fair weather, and consequently the atmosphere became damp in the extreme. The rain although generally not very heavy fell almost incessantly,* as the quantity during the two months exceeded 60 inches; great as that amount must appear it was trifling in comparison with what falls at Cheera Poonjee in the Cossyah Hills during the same period, where, in the last 20 days of August and month of September 1834, it measured above 100 inches. At Cheera Poonjee the rain descended in actual torrents, but not generally so continually as it

* See Appendices C. and D.

proved at Dorjéling last season. In the Cossyah Hills, however, the rains always commenced much earlier, and were protracted to a much later period, than should be expected to be the case at Dorjéling. As the weather was fair from the 18th of August, and thunder storms frequent in the neighbourhood, it appeared probable that the wet season of the year had nearly ended, although heavy falls of rain might be looked for during September and early part of October. Dr. Chapman added, that the higher range of Hills to the south of Dorjéling, which it was supposed would screen them during the violence of the monsoon, had decidedly stopped much of the heavy rain which they had reason for believing had fallen in the direction of the plains, but at the same time it was to be observed that this range also appeared to confine the vapours within the hollow in which Dorjéling was situated, and thus to have caused the place to be so constantly enveloped in clouds and fogs during the calm weather, which prevailed from June to the middle of August. After the 18th of August strong breezes from N. E. to S. E. cleared Dorjéling and the surrounding vallies in a great measure of fog and mist.

The temperature during those three months was remarkably equable, mean temperature under 62° and mean daily range of Thermometer under 10 degrees.* Dr. Chapman states that taking into consideration every circumstance connected with the climate of Dorjéling, particularly the general state of the weather and condition of the atmosphere as regards moisture, he could not consider it suited for the purposes of a general sanatarium for invalids from the European corps during the two months of the rains he had just passed. He was greatly influenced in forming this opinion from having witnessed the injurious effects of a continuance of damp cold weather on the diseases of the detachment of European invalids at Cheera Poonjee, of which he held Medical charge in 1834.

A very large proportion of the men sent to the sanitary stations from the European regiments laboured under hepatic affections, dysentry and rheumatism, all frequently complicated with organic disease, and for such forms of disease Dr. C. was decidedly of

* Vide Appendix D.

opinion, the climate of Dorjéling during the rains would be found entirely unsuited.

There were however various diseases and ailments which he had no doubt would be greatly benefited by the parties labouring under them resorting to Dorjéling at all seasons, and he instanced the following:

Cerebral affections, general debility, whether arising from a long residence in the plains or depending on tardy convalescence from fevers and other acute diseases, the milder forms of hepatic derangements, dysentry, and diarrhœa, when uncomplicated with organic disease; and probably all the complaints to which females are so obnoxious in tropical climates. As far as the officers of Government and private individuals are concerned, he believed the establishment of a sanatarium of Dorjéling likely to prove of the greatest service; but when the habits of the European private soldiers were considered, and the severer forms of disease under which they usually laboured, and also the impossibility of a large body of men being furnished with the various comforts which are within the reach of every officer and private individual, Dr. Chapman trusted, that the opinions he entertained and observations he offered regarding the improbability of advantages being derived from the establishment of a general sanatarium at Dorjéling, might not be misunderstood.

The party had generally been healthy; intermittent fever was the disease principally had to be treated, but in no one instance had it appeared among those who had remained at Dorjéling without visiting the plains.

On perusing the above, Colonel Lloyd commented on it to the effect that a difference would be observed between the quantity of rain registered* in the Tables, and that indicated by a patent pluviometer, the patent one could not be depended upon, not having been verified; but the accuracy of the one from which the daily record was made had been tested previous to their quitting Titalya. Colonel Lloyd thought that it might admit of some doubt whether if the depression of the wet-bulb thermometer and the dew-point had been taken at noon as well as at 10 A. M. and 4 P. M., the means would not have shown a more favorable

* Vide Appendix D.

result, because the morning and the evening were generally the dampest part of the day, and showers frequently fall at those times, whereas the weather may be dry at noon. The continual calm weather with only very light airs during the rainy period seemed to Colonel Lloyd a peculiar circumstance ; had there been any breeze they probably would have had dryer weather, as it must occasionally have blown the clouds off the mountains. This officer remarked that the rainy season had been unusually severe in the plains in that vicinity as would be seen by the marginal* reference, and likewise that the Mahanuddee rivers had been higher during that time, than for several years past ; hence he inferred that the past should not be taken as a fair average of the rainy seasons at Dorjéling.† Colonel Lloyd concluded by stating that a mountain climate must be expected to be subject to fogs and mist, as the clouds always rest upon the summits, and that since Dr. Chapman's opinion was unfavorable to any such situation as regards its influence on the ailments complicated with organic disease, which were frequently the affections from which European soldiery suffered most, and since all the hill stations from Simlah to Cherra Poonjee might be comprehended in this view in progression from west to east, in proportion to the rain and fog at each, which may be supposed to increase the further east the station may be situated; he would not presume to offer objections (although other Medical gentlemen might differ from Dr. Chapman's opinion,) but would

* *Abstract of a Diary of the weather at Titalya, June* 1837, *kept by a Native:*

6th. Night rainy.
7th. Ditto ditto.
8th. Ditto light rain.
11th. Day rain till 11 A. M. night heavy rain and storms.
12th. Heavy rain all night.
17th. Ditto ditto with storms all night.
19th. Night light rain.
21st. Rain from noon to noon, and from 10 P. M. throughout night.
22d. Ditto ditto ditto.
23d. Ditto ditto ditto.
24th. Ditto ditto ditto
25th. Rain all day and night.
26th. Ditto ditto.
27th. Ditto ditto.
28th Light rain throughout the day and night.
29th. Ditto ditto.
30th. Ditto ditto.

July, 1837.

4th. Day and night rainy.
5th. Day raining till noon, night rainy.
6th. Ditto ditto.
7th. Rain all day and night.
8th. Ditto ditto.
9th. Ditto ditto.
10th. Rain from 3 P. M. and rainy night.
13th. Rain till noon, light rain all night.

* Vide Appendix D.

† Dr. C. doubts whether any of the rain that falls at Dorjéling finds its way into the Mahanuddee.

14th. Rain from evening to midnight.
15th. Light rain all day, heavy all night
16th. Heavy rain all day and night.
17th. Ditto ditto.
18th. Light ditto ditto.
19th. Ditto till 10 P. M.
20th. Light rain till noon.
21st. Rainy till noon light rain all night.
22d. Light rain during the day, rainy all night.
23d. Rain from noon and through the night.
24th. Day showery.
27th. Rain from dawn to 10 A. M.
28th. Rain from evening to 11 P. M.
31st From 4 A. M. all day and night.
Diary for August not received.

observe that if a warmer climate were deemed more advisable it might be enjoyed at Ging, about four miles from Dorjéling on the northern shoulder of the mountain, and situated at a less elevation, consequently with the temperature higher. Colonel Lloyd's impression was, that as far as the sensations were concerned, or the discomfort which might naturally be supposed to be experienced in a cold damp climate, he might safely say that with good houses, and a fire which he had even found indispensible in the evenings of the finest and dryest weather, nothing need be apprehended on that score; and the rain ran off so rapidly that were it not for the want of proper roads or walks out of door, exercise might be taken without the risk of wet feet immediately after the shower ceased.*

WATER.

Captain Herbert assures us, that at Simlah the spring was both distant and scanty in supply, and this circumstance formed a very principal objection to the place. At Landour there was similar scarcity, certainly on the Mussooree quarter of the Hill, if not at the Invalid Station. At Almorah there was no want of water, but it was contaminated by mineral impregnation, and was notedly unwholesome, and that thus Dorjéling had the advantage over all these places of a sufficient supply of the fluid and of a perfectly pure and wholesome quality. Two springs were to be found at no great distance, and even were it otherwise, the difficulty could be immediately obviated by conducting one of the numerous rills or torrents† in the communicating, and higher ridge of Sinchul along the face of the mountain, after the manner practised by the mountaineers; an arrangement involving little expense. The

* Compare Diary for June, July and August in Appendix C.

† Dr. Chapman doubts the practicability of this.

certainty of a supply of water is fully confirmed by Colonel Lloyd, and Dr. Chapman's report suggesting the propriety of constructing pucka reservoirs at two of the principal springs, the water appearing to be very pure and good, and after the construction of such reservoirs promising to be ample.

Colonel Lloyd separately informs us that at or near Dorjéling there are six different springs, all of very pure water, and that there might be more on the higher parts of the Hill, but that these are calculated to furnish a more than sufficient supply to meet any demand likely to be made upon them; he would however recommend reservoirs to be constructed at the two most copious springs to prevent the water they afford from running to waste, and to enable those resorting to them to obtain their supply more expeditiously than they otherwise could. The stream from the largest of these springs is able to furnish a gallon and a half of water per minute at the dryest season of the year. Dr. Chapman states that the supply of water at Dorjéling is ample for all necessary purposes—but if the place be resorted to, the construction of reservoirs will be indispensable. He ascertained that the quantity afforded by the two most convenient springs, amounted to 2,500 gallons in 24 hours, and there were several other known springs in the immediate vicinity, which would be available when cleared from surrounding jungle. The quality of the water appeared unobjectionable; his limited means did not admit of his making any accurate examination, but he thought sufficient had been done to justify him in stating that it did not contain iron, lime, or other mineral or saline substance, in any appreciable quantity.

Under the circumstances represented, Government will authorize the construction of these reservoirs so soon as the public may make any demonstration of their real intention to occupy Dorjéling.

RESOURCES AND SUPPLIES.

The remarks of Captain Herbert on this head, are to the effect that supplies of grain would be necessarily drawn from the plains at first, the country itself scarcely yielding enough for its own scanty

population, but that this necessity need not last long, the soil being every where excellent, and with the extraordinary facilities* existing for irrigation, likely with proper cultivation to be highly productive. But even in drawing supplies from the plains, Captain Herbert thought there would be little inconvenience, as the distance was so small, to the cultivated tract of the foot of the Hills—supplies of animal food he remarked would have in like manner to be drawn from the plains at first. But these mountains offered, in Captain Herbert's opinion, such advantages in this particular point of view, that they would be soon fully sufficient not only for the wants of the largest station likely to be established, but they might even supply all the European population of India; and Captain Herbert adds, that perhaps in no part of the world were to be found such extensive tracts of superior pasturage,† as proved by the fine condition of the cattle not only in Sikkim, but in the British mountain provinces to the north west. That a very profitable scheme of sheep-farming might be set on foot in any of these mountains, is a fact Captain Herbert appears convinced of, and this whether the fine Thibetian breed be sought after, (a breed fully equal to the best European, the wool superior to the best merino) or the common black faced sheep of the northern mountains (with short tail) or of the plains (with long tail) be adopted. He was very anxious to see the experiment of naturalizing the Thibetian sheep at Dorjéling or in its vicinity. He was sure that even were the animal to degenerate, which perhaps it would do in some degree, it would be still well worthy of attention. The breed of cows in Sikkim was also reported by the above officer as only inferior to our English breed, and in fact something like it; the animal being larger and straighter, and longer in the back than the cow of the plains, but some of them having the hump so unequivocally manifested left no doubt in his mind of their affinity with the latter. Their colour is described as generally red or black, or piebald or spotted, seldom altogether white. They are said to keep

* Dr. Chapman thinks the soil certainly excellent, but supply of water not overabundant for irrigation.

† Dr. Chapman remarks that about Dorjéling itself there is nothing but forest, but that cattle appear to find plenty to eat, and keep in good condition.

in the finest condition, and being treated well, to become as familiar as dogs, even with strangers. Of wild animals there seems to be the same variety as in the western mountains; several species of deer and antelopes, wild hog, wild goat, &c. &c. Their breed of fowls is mentioned as a very fine one, and superior to that of Chittagong, while of game the usual variety of pheasant, partridges and quails exists. Of these, as well as of the wild animals, many might be domesticated, and as an instance, Captain H. mentioned the chikoor as being a bird easily tamed, and of a remarkably bold and familiar character.

Mr. Grant in 1829 says that at Dorjéling itself there was firewood in abundance but nothing else—immediately under the Hills, cattle, hogs, fowls, goats and rice were abundant, and the road to the station would lay open this supply within the Hills, and at the same time potatoes, wheat, and the fruits and vegetables of Europe could be cultivated. The cattle and cows of the country were both superior in his idea to any found in Bengal.

Mr. Grant tells us that to the eastward and close at hand appears the Dhurmah Rajah's country or Bootan, the people of which are proverbial for their love of traffic and industry; immediately to the north of this lies the province of Tarra, the pass into which is in the borders of the Sikkim country, and Mr. Grant adds that there can be little doubt, that were a road made passable even for cattle through the Sikkim country, with easy communication with the different ghauts on the Teesta, the Booteeahs would avail themselves of this roads to open a traffic, not only between themselves and the inhabitants of Dorjéling, but between Bengal and Chinese Tartary; and that he had been informed that large flocks of sheep were kept, immediately on the Goorkah frontier—the shepherds finding excellent pasture just below the snow, and changing their stations according to the seasons; a road appeared only to be required to make this an available supply, and this might easily join the other formerly proposed, wherever found most convenient.

Colonel Lloyd's idea is that the bare clay mixed with vegetable mould or other manure, seemed ill calculated for agricultural

purposes, and this may account for the Lepchas not cultivating the same spot for more than three years; the Booteas, Colonel Lloyd remarks, seldom appear to move from the place where they once take up their residence, and most probably are aware of the benefit to be derived from manuring their land; they cultivate principally wheat and barley, whereas Indian corn, cotton, munjeet, and rice form the staple produce of the Lepcha agriculture; very fine yams, turnips, and a few other vegetables, are also generally to be found near their habitations: Col. L. adds that at present no calculation should be made upon drawing any supplies whatever from these mountains, as the inhabitants cultivate barely sufficient for their own consumption, and that until they become sensible of the value of money there seemed to be little prospect of their increasing their cultivation with a view to selling the produce. Colonel Lloyd tells us that the crops they do cultivate sometimes fail from want of sufficient rain, and that last year a great deal of their wheat had been destroyed by hail, which had compelled them to resort to Demalli-Gola, a place of trade within, but near the foot of the Hills, where they could obtain rice in barter for cotton and munjeet, and the Sikkim Raja is said to draw annually a large supply of rice from the Morung. Colonel Lloyd reports that the cattle of the mountains are very superior, and though they may not be very plentiful in Sikkim, they may be procured in any numbers from Nepaul, but they must be smuggled, as the Nepaulese Government permit no trade with Sikkim; also that the large mountain sheep named Burral, are reared in large quantities, and pastured on the mountains which form the boundary between Nepaul and Sikkim, by a tribe of people called Lingio.* Colonel Lloyd thinks they might perhaps be brought for sale when it was found they obtained a good price for them. The poultry of Sikkim is also described by Colonel Lloyd as of a fine large breed, and being generally found near every Lepcha and Bootea house, might in time be brought for sale—and adds that if once a road is

* This name may have a connection with the ultimate of Dorjéling. Mr. Csoma however, in contradiction to the note affixed to the Introductory Remarks, derives the name of the spot from rdo-rje-ling, pronounced Dorjeling, and signifying "the hilly spot."

constructed, there will be no difficulty in obtaining supplies from below—cattle, poultry and rice being very plentiful and cheap in the Morung, and sheep, wheat and other grain to be had with ease in the Purneah District. Dr. Chapman says but little of the general products of these Hills, having had no opportunity for extending his observations beyond Dorjéling, and having been unable to procure any thing from the people of the country. He states that wheat and barley are grown on some of the mountains of a less elevation than Dorjéling—rice and Indian corn, both of fine description, in lower situations; and that many of the vegetables, common to the plains, are produced in the valleys. The natives however appeared to him to draw a large proportion of their supplies from the plains. He reports the principal exports to be cotton, munjeet and coarse Thibet blankets, for which were received in barter, tobacco, rice, sugar, &c. &c, and that wild fruits exist in great variety in the neighbourhood, viz. a strawberry, with a yellow blossom, several kinds of raspberry and the blackberry, and many others with which he was unacquainted; several fine walnut trees had been discovered in the forest, and Dr. C. makes mention also of a delicious root, somewhat resembling the yam in appearance, which grows in the jungles. Having been unsuccessful in purchasing cows, sheep or poultry, Dr. Chapman concluded that there was no abundance of domestic animals in the country, but says that the cows were known to be of a superior description, and that sheep and goats of the Thibetan breed, were kept on the higher mountains to the N. W.; the few fowls he saw were of much larger size than any to be met with in the plains. Wild animals appeared to be numerous in the forest though seldom seen; deer, hogs, bears and leopards among the number; several kinds of pheasants were also seen; but the nature of the ground and thickness of the forest rendered it next to impossible to approach them. Dr. Chapman considers that although no supplies of grain or of animal food should be procurable in these Hills, the circumstance could never cause inconvenience to parties residing at Dorjéling, if a good road were made to the plains. Grain, bullocks, sheep, goats and poultry being very cheap and plentiful in the cultivated country at the foot of the Hills, and and in the neighbourhood of Titalya.

Not very much is yet known of the mineral resources of Dorjéling —the Lepchas and Bhooteas from some superstitious motives are averse to mining, and all the iron they require is smuggled from Nepaul. Nepaul is known to be rich in minerals, and as Sikkim is a part of the same mountain range, it is fair to infer that it also contains ample stores, which, with its other resources, would doubtless be developed if the country became better inhabited and the present wilderness were replaced by cultivation.

CLEARING THE JUNGLE.

Mr. Grant's prediction is, that if a Sanatarium be made at Dorjéling, under Government authority, there will be a large accession of inhabitants, for the poor people, who have taken refuge with the Goorkahs from the tyranny of the Rajah, formerly lived there and were anxious to return, and that consequently the forest would soon be made to disappear. Captain Herbert thought that with regard to the clearing of a tract sufficient for the establishment of a Sanatarium, little difficulty would occur, and that nothing was required but to burn down the grass jungle, which in some few places grew up to an inconvenient height, as the summit of the ridge was otherwise ready for building on, and this for a space exceeding immediate probable wants, and if the forest should be a little too thick round the declivity of the mountain, the demand for firewood (if not for building materials,) in such a cold climate would speedily effect sufficient thinning of it, to obviate all objection. The work at the place itself would be then confined to the erection of a sufficient number of tenements.

Colonel Lloyd's report shews the clearance of the jungle, or rather the cutting down of the forest, in the immediate vicinity of Dorjéling, to be very desirable, if not absolutely requisite; as during the months of March and April, the place was infested by a small fly called a peepsah,* something of the size and appearance of a sandfly, from the bite of which the natives of the plains (from

* Dr. Chapman says that these appear in February and remain till October.

their bodies, and more particularly their legs, being naked) suffer very great annoyance. This insect is said to disappear with the jungle, and indeed was not found on Colonel Lloyd's first arrival; the effects of its bite are not only really bad, but it is made a bugbear of by the people below to deter men from going up to Dorjéling. Colonel Lloyd thinks that the natives of the hills disregard its bite entirely, perhaps because they are from childhood accustomed to it, and that people inhabiting a good house with doors and glass windows would escape this annoyance, as the insect remains in the open air and only makes its appearance on warm days. He says that at night it is never seen, and even in the day seems to be unable to fix itself on a person who keeps in motion, but the moment one stands still or sits down they surround the person, particularly about the legs; but he adds that a moderate breeze blows them away.

Dr. Chapman urgently recommends that should the Government determine upon having a Sanatary station at Dorjéling, the first thing to be commenced upon after making the road to the plains may be an extensive clearing of the surrounding forest; this, he says for many obvious reasons would appear highly desirable, and probably would tend in a great measure to rid the place of the numerous insects which from March to October proved not only exceedingly annoying, but also caused serious inconvenience, their attacks having actually driven all the Bengalee coolies from the place and rendered many of the servants and the Sepoys unable to perform their duties, owing to ulcerations on their limbs arising from the bites of these insects.

GROUND FOR BUILDING.

Captain Herbert states that in respect to the quantity of even ground Dorjéling has the advantage of Simla and of Almorah, but scarcely of Landour, and that as to rides and walks no place has a fairer field for them than Dorjéling, it being practicable to cut a level ride of an extent far beyond the probable wants of any visitors along the face of the Sinchul mountain. He adds that this mountain is well wooded, and that on the summit of the Gurdun Kuttur range and connected with it is some of the noblest

forest scenery ever seen. Yet that officer thought that in point of natural scenery Dorjéling must yield to Simla, which with its vicinity he seemed to consider one of the most beautiful and romantic tracts of country within the whole circuit of our mountains. He tells us that "the great ornament of the Simla landscape, the Deodar, is wanting in that of Dorjéling, so also the verdant and softly swelling banks enamelled with a thousand flowers, the shady walks and rides, and the many other indescribable charms found nowhere but at Simla." Dr. Chapman thinks that with respect to ground suitable for building purposes there is already a large space cleared, certainly sufficient to meet any immediate demand, and on the continuation of the Dorjéling ridge to the N. W. there is much level ground, and that many desirable spots now covered with forest might be found to the west, south-west and south; to the north and east the Hill is too steep in his opinion to admit of houses being erected, but on the ridge leading from Dorjéling to Ging, and which is in a northerly direction, there appeared many eligible sites.

Colonel Lloyd says that with respect to the demand which should be made per beegah, and the extent of land to which each individual should be limited as well as the duration of the leases, the regulations on this subject at Simla, and Mussooree would perhaps be the best precedent to go by. That officer thought perhaps three rupees* a beegah for ground already cleared, and at once available for houses on leases for 21 or 30 years, and one rupee per beegah for the uncleared forest tracts for the same period might be a fair demand, when it was borne in mind that at the falling in of the leases, the ground and buildings would become Government property, as the uncleared portions might be granted free of rent for a time on condition of clearing, and building to be then chargeable for a further term with a light rent; and he considered that if it were deemed necessary to have an absolute limitation, or if streets for a town could be laid out, perhaps three beegah lots might be deemed a convenient limitation, but he was convinced that the nature of the ground must determine the size of the lots, and

* See the Government orders on this subject in Appendix E.

therefore the local agent's discretion should be depended on for the extent to be appropriated to each. Government has agreed to vest Lieutenant Colonel Lloyd with a discretion to let and lease parcels of ground at Dorjéling, but has thought it preferable to establish a quit rent varying according to the advantage of the site, but not exceeding on any one location 50 Rs. per annum. The details of allotment are to be left entirely to the local officer.

BUILDING MATERIALS.

Captain Herbert proceeds to say that a very good building stone is found at Dorjéling, (gneiss,) and abundance of timber for roofing and other purposes, is at hand covering the Sinchul ridge. Captain Herbert states that slate is wanting,* but could doubtless be found at no great distance. In this respect the place seemed on a par with the stations to the north-west. Capt. H. imagined that limestone† would also be found at no great distance in the same way that it had been found at Simla, and at Almorah where at first great inconvenience was felt for want of this useful mineral. Captain Herbert felt the more satisfied that it would eventually be found in the vicinity inasmuch as the grey wacke formation, with which the limestone is always associated, (as at Landour) is at no great distance. Capt. H. adds that limestone was sometimes found even in gneiss though more rarely.

Captain Herbert advised (at least in the first instance) the copying the people of the country who construct their houses of bamboos (which are at hand,) and mats formed of a small reed which grows in great luxuriance on the Sinchul ridge—his report shews that these houses are raised about four feet from the ground, the flooring being made of split bamboos and that the roofs are thatched with grass,‡ of which there was abundance, and the houses themselves were considered by him very comfortable, and if plaistered with mud, to be afterwards white-washed, capable of being improved

* Colonel Lloyd and Dr. Chapman say that slate is to be found.

† Dr. Chapman says lime is procurable at the foot of the Hills, as also in a valley near Dorjéling, though not yet uncovered.

‡ Dr. Chapman says that this grass is very little fit for such purpose, and, that this is proved by the native huts being roofed with split bamboos ; and that what is fit, is not to be found in abundance.

in a climate where, during part of the year, it is a great point to keep out the wind to which the mat walls are rather pervious. Captain Herbert remarked that there was danger of fire, certainly a serious objection to such houses, but one the people of the country obviated by having open hearths of earth in the middle of the room, leaving the smoke to get out through the chinks and crannies of the mat walls as it best might. The joint report of Colonel Lloyd and Dr. Chapman informs us that with respect to the construction of buildings there appeared to be no dearth of materials with the exception of lime, which however might hereafter be expected to be found nearer than it then was; two days journey would be required to bring it from the nearest known locality. Workmen would perhaps be found, but must at present be procured from Nepaul, as the natives of these Hills, whether from being prohibited by their Government, from laziness or false pride, seemed unwilling to undertake any employment for hire.

Colonel Lloyd distinctly states his idea that there will be no difficulty in procuring building materials, and that timber of every size abounds in the surrounding forest; morever that magnificent saul and fir trees are found lower down on the northern end of the Dorjéling range, as well as bamboos of all kinds and cane. He informs us that the gneiss is a very good building stone and may be quarried in any quantity as required. The soil seemed to him admirably calculated for making bricks and tiles, and there was no deficiency of wood to burn them. He suggests that the slate at the northern end of the Hill might be found adapted to building purposes; so that with the exception of lime which must be brought one or two days journey (unless some should be discovered nearer) it might be safely asserted that building materials were sufficiently plentiful. Colonel Lloyd further observes that the houses of the natives are in general mere huts, constructed entirely of bamboos; the house he himself resided in was a frame-work of timber rudely put together, the interstices filled up with a watling of bamboos and plaistered with mud; the flooring being of planks and the roof of split bamboos; but the goombiz* of the Lamas

* Goombiz, properly domed roof.

and the Raja's houses seemed to him all built very substantially of stone, with mud cement, consisting of several stories and roofed with the small bamboo split. Dr. Chapman in his separate note reports materials for building to be in abundance, and that stone of an excellent quality (gneiss) may be found in all directions in the surrounding forest, containing timber in great variety. He adds, that excellent fir timber could also be brought from the banks of the Runjit in two days. Lime, in the form of deposite on rock of other formation, was known to exist at the foot of the hills and was also found in a valley two days journey north of Dorjéling. He thinks limestone will probably be found when the surrounding country becomes frequented and better known—he describes the roofs of all the houses in these mountains to be covered with split bamboos, which, when well constructed, form a perfect shelter; he tells us that the bamboos grow in great abundance some short distance from Dorjéling, and points out that should the supply prove insufficient, recourse might be had to planking and tiling, the materials for making tiles and also bricks being abundant on the spot—grass suitable for thatching could not, in his opinion, be obtained in any considerable quantity.

INHABITANTS.

Captain Herbert's sentiments, with reference to the people of the country and their character are, that in effecting the several arrangements which would be called for in the event of a settlement being made, and to develope the resources of the country, we should require a small population, intelligent, active, willing to be directed, sociable, and as far as possible without those prejudices which obstruct efforts at improvement at every step we take in the plains, and such a people Captain Herbert considered to be at hand at Dorjéling on the very spot selected. He tells us that twelve hundred able-bodied Lepchas,* forming two-thirds of the population of Sikkim, have been forced to fly from Dorjéling and its neighbourhood, owing

* Dr. Chapman tells us the Lepchas consider themselves soldiers and unwilling to work, and that the Bhooteas would be the useful class to have at Dorjéling.

to the oppression of the Raja. Captain Herbert narrates that with their Chief, Eklatok, whose brother Barrajeet Kazee* with his wife, and children were murdered by the Raja of Sikkim, they sought protection within the Goorkhalee territory where they obtained a settlement, but that like all mountaineers they sighed to return to their native glens. In his opinion their freedom from the trammels of caste, and ignorance of and indifference to Hindoo prejudices rendered their sojourn with a bigotted race, who are ambitious to be considered orthodox Hindoos, less comfortable than it might otherwise be, and that owing to one or both of these causes the people were most anxious to return to their country; and as they were fully capable of protecting themselves, and even of executing summary justice on the Raja, they would return immediately, but for fear of the English Government which they suppose determined to uphold the Raja in whatever excesses he may commit —but Capt. H. observes that the Goorkhas are naturally enough desirous of retaining them not only as useful subjects, but as likely to afford them some day or other, a pretence to interfere in the affairs of Sikkim; and that the Lepchas in their hands might be useful to them, in our's hurtful, they have sense enough to see, and that accordingly they have thrown every obstacle in the way of Eklatok Kazee's attempts to communicate with the British authorities. Captain Herbert instances that letters to Mr. Smith at Rungpore were written by stealth, and conveyed secretly and as no Goorkhalee (who alone can write the Persian or Nagree character) would lend himself to such a correspondence the communication was necessarily made in the Lepcha tongue and character, which was unintelligible at Rungpore. Captain Herbert considers that the first step towards establishing a Sanatarium at Dorjéling would doubtless be to invite these men to return to their homes—and that this is what they have been labouring to obtain since they quitted their country.

Captain Herbert further considers that the character of these people particularly fits them to co-operate with Europeans in improving the country, and says they are a totally different race, morally and physically, from the people in the plains, and that their

* Kazee or Carjee.

peculiarity of feature marks them to be a tribe of the great Calmuc family, and they allow themselves to be originally the same people with the Bhooteeas or inhabitants of Thibet* who are evidently Calmucs. Captain Herbert states that notwithstanding their marked features, so far removed from our standard of beauty, he often fancied them good looking,† and thought all who saw them would prefer their open and expressive countenances to the look of cunning suspicion or apathy that marks the more regular features of the Hindoostanee, adding that their countenance does not belie them and that they are the most good humoured, active, curious yet simple‡ people, that he had ever met with. He informs us that it was impossible to know them and not to feel a regard for them; that bold and free in their manners, yet perfectly respectful, curious to a degree characteristic of the Europeans, sociable, obliging, cheerful, and of imperturbable good humour, with the most perfect simplicity, and complete freedom from guile, they are calculated to make a very favorable impression on Europeans; and being superior in moral character and social qualities to the people of the plains, they have in Captain Herbert's idea even stronger claim on our notice, as being free from all those degrading superstitions and absurd and injurious prejudices which not only throw a cloud over the good qualities their possessors may have but appear a most powerful bar to improvement. He describes the Lepcha as of an athletic make, yet not clumsy. In figure as well as in regularity of feature yielding to the Hindoostanee. In muscular power, however, as well as in the will to exert it greatly his superior, and Captain H. believed a Lepcha would carry twice the load of a bearer or coolie and carry it with good will. He states that there is an animation and a cheerfulness of manner which may be considered characteristic of these people, and which never deserts them, however heavy their load, or prolonged their journey—nor did they seem to him less remarkable for ingenuity and fertility of contrivances, than for mere brute strength, and he tells us that

* Vide note to Introductory Remarks.

† Vide Mr. Grant's remarks on climate and healthy complexion.

‡ Dr. Chapman thinks their simplicity and love of truth somewhat questionable.

with nothing but a long straight knife (very like what our butchers at home use), the Lepcha will in an incredibly short period of time house himself. To their talents in this way Captain Herbert was indebted for lodging during great part of his journey, and if thirsty on the road a Lepcha was immediately ready with a drinking cup fashioned out of a bamboo, with the assistance of the same knife, or if a bamboo was not at hand a large leaf was ingeniously fashioned to supply the same want, whilst string or rope for whatever purpose required was always at hand in the bark of a bamboo, which furnishes one of the toughest of fibres.

Captain Herbert informs us that the women and children are equally remarkable for the same prepossessing characteristics as the men. Though deficient in personal appearance (at least judging by European standard) they yet made a favorable impression on his party, owing to their good qualities and the degree of marked character, which was observed in each individual so different to the children of the plains. Their women seemed to have no scruple with regard to being seen, and they accordingly went about freely performing all their household duties, with a spirit and a cheerfulness that reminded the sojourner amongst them strongly o. Europe. Captain Herbert in conclusion asserts that men, women and children are a most excellent and amiable people; that to have their assistance in the first attempts to establish ourselves at Dorjèling would ensure our success, and that the description which Turner in his account of Thibet gives of the inhabitants of that country applies very closely to the Lepchas, who appeared in fact to be the same people. Captain Herbert thought there was no such race in our North Western Provinces, the inhabitants of which seemed to him but little removed either in feature, character or religion from those of the plains, whereas in Sikkim there appeared the strongest opposition in all three. Captain Herbert adds that there are many ways in which such a people would make themselves useful, and that without their aid nothing could be done unless it was found that Europeans could labour in the open air,* but although they

* Dr. Chapman dug in his own garden a portion of each day in March, April, and May; and recommends that European Invalids when sufficiently recovered should labour every day during fine weather.

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might do so in the cold weather, if able-bodied (certainly not invalids), still it would not in his idea be expedient to allow them to do so in the hot weather and the rains,—and states that unless a regiment could be sent there little progress would be made, for there was every thing to do, and certainly Europeans* could not well be employed as porters, so that however able and willing the men might be to perform ordinary work the assistance of the Lepchas would still be needed. Captain Herbert assumes† that at that date (1830) the country (about Dorjèling) had no inhabitants, and that it would be obvious that without some assistance of this kind settlers would be very much puzzled at first.

In Colonel Lloyd's opinion the Hill people are not likely to be available to any very great degree as workmen and labourers, for they seemed to him to have no proper idea of the value of money, living under a feudal Government, where their services when required were forced without any remuneration; he says that they are unaccustomed to the idea of working for hire, and perhaps looked upon it as in some degree derogatory to them as soldiers which they all affected to be; but that if the cordial assistance of the Sikkim Raja were given, through his orders workmen might be obtained, and when they found they were surely remunerated for their labour they might incline subsequently to work for hire. But the Raja did not appear disposed to afford any assistance that he could evade; on the contrary it was said that the natives had been prohibited from going to Dorjèling, otherwise some of them would have made their appearance with some little articles for sale or barter, but with the exception of a few men sent by the Raja in the first instance to assist in building Colonel Lloyd a house, and the people travelling along the road from or towards the plains, none were seen nor had those residing near the place been induced to come, and be entertained as workmen. Colonel Lloyd proposed that people of that description should be procured from Nepaul where they were plentiful, and he suggested that the natives of the plains

* Mr. T. Dickens and the other petitioners speak of the benefit of a Sanatarium to the middling classes. Why should not European carpenters, bricklayers, &c. proceed to Dorjéling and superintend native workmen?

† Assumes—for he was only there three or four days.

provided they were furnished with good clothing might be made to answer.

Dr. Chapman thought that the Raja of Sikkim, having hitherto manifested a disposition to throw every obstacle in the way, it seemed hopeless to look for any effective aid from the people of the country in forming an establishment at Dorjèling. He stated that the Lepchas considered themselves soldiers, were very unwilling to act as labourers, and their continued co-operation could never be depended upon. The Bhooteas seemed to him a laborious people, and if the Raja would permit a party of them to settle at Dorjèling they would gladly do so, and their services would be invaluable. Dr. Chapman suggested as probably the best plan that the Government should invite the refugees in Nepaul to return under certain stipulations to their own country, now forming parts of the Company's territory.

With a view to remedy as far as possible any difficulty of this nature, the Government in addition to suggesting to Colonel Lloyd as before stated to try the experiment of procuring Ramghur Hill labourers who were known to be in the employ of Indigo Planters, and other gentlemen in the neighbouring districts of Rungpore, &c., called upon that Officer to give a full explanation of his proposal to invite the Kazees to settle at Dorjèling. In the answer to the above call Colonel Lloyd stated that some ten years ago, the tyranny of the Sikkim Raja had induced Eklathoos Kazee, his friends and relations with about 1200 followers to take refuge in Nepaul; that Eklathoos had solicited the interference of our Government but that was withheld, and he had been recommended to made up his quarrel with the Sikkim Raja and return to his country; this last he had always professed his readiness to do, provided he was guaranteed by the British Government. Colonel Lloyd proposed to invite these people to Dorjèling on condition of their constructing and maintaining a good road, and conveying the post within the Hills and furnishing workmen; as such assistance of the people of the conntry would afford great facility to settlers. Colonel Lloyd added that the Sikkim Raja might take such invitation of the refugees ill, but as he would not let his own people come near us we might avail ourselves of the assistance of those who would.

The Government declined inviting the Carjees on such conditions and under such circumstances.*

POLITICAL RELATIONS.

Much on this topic having been alluded to, in speaking of the cession of Dorjéling in the Introductory Remarks, and much in the immediately foregoing pages, it has merely to be stated that Colonel Lloyd was asked for his opinion as to what Military force would be sufficient for the protection of European settlers at Dorjéling, also whether any collision between such settlers and the inhabitants of Sikkim or Nepaul was to be apprehended. Colonel Lloyd did not see the slightest probability of any collision occurring between the inhabitants of Sikkim and Europeans who might settle in the tract ceded to us by the Raja. The people had no prejudices of caste, and in his opinion from that circumstance and congeniality of habits would assimilate well with Europeans, and that Officer thought that if once decisive measures for retaining the place were adopted, and a sufficient force stationed by our Government, the people would throw off their shyness, and it seemed to him very likely that many of them would prefer residing under our rule, and would quit the Raja's territories for the purpose, whenever they felt confident of being permanently protected by us from his tyrannous control. Colonel Lloyd felt persuaded that severe threats had been promulgated by the Raja to restrain them from resorting to the spot, and he was assured that one of the Raja's functionaries had lately been sent there to reside for the purpose of deterring the people from any intercourse with us. The Nepalese frontier being at least two days journey off, seemed too distant to cause any apprehension of collision between the Europeans and the strict Hindoo population of Nepaul. Col. Lloyd remarked that in considering the question of what Military force would be requisite for the protection of the European settlers, it must be borne in mind that there were no troops, on or near our northern frontier from Goruckpore to the Burrumpooter, a distance of more than 500 miles; that the inland stations nearest to

* Were they certain of employment and pay would not the numbers now flocking to Demerara in quasi-slavery prefer Dorjéling? And with European superintendence and European punctuality in payment of wages would there be any difficulty in this measure?

Dorjéling, namely, Dinapore, Berhampore, and Jumalpore, were too far to be relied on for emergent support, or assistance, if they could spare it, which was not likely to be the case with Berhampore, the nearest of them, though still about 200 miles off; it was necessary to recollect also, that the position was located among semi-barbarous, warlike and treacherous nations, with whom surprises and night attacks were favorite modes of warfare, and that any rupture must be expected to be first indicated by a surprize.* In Colonel Lloyd's view of the case an inefficient or inadequate force would always hold out temptation to aggression and attack, and he strongly recommended that the force stationed should be sufficient, to deter from any treacherous attempts upon it, and to maintain its position in case of need till assistance could be sent from the nearest station. Colonel Lloyd imagined that the foregoing objects might be ensured by stationing at Dorjéling one Company of from 80 to 100 European Infantry, and a detail of Artillery, with two or more light guns, and at the same time constructing a field work in some eligible position, which might be occupied in case of need. European troops seemed unquestionably the best calculated for the climate and place, but if it were inconvenient to send them, natives must be substituted, but it was in Colonel Lloyd's idea indispensible that they should be no other than natives of the hills; the men of the plains being worse than useless. Colonel Lloyd observed that the required number of hill men might be drawn from the hill corps to the north-westward, or from the Sylhet or Assam Corps, or what would be better than all, they might be separately entertained for this duty; and in the latter case he contemplated a proposal that they should be entertained from about Dorjéling on the same terms, (but only for local service,) as the Corps of Sappers and Miners, for a detachment of which to construct the proposed road he had submitted suggestions, and on which detachment as a nucleus, the above men to be entertained, might be formed. Colonel Lloyd considered that in this case being entertained as Sappers and Miners, they would not only be available as Infantry Soldiers with firelocks, but would supercede the necessity of labourers in road making and jungle clearing, and they would erect their own fortifications and barracks, &c. This native force

* Two martello towers with twelve guards and two traversing guns each might secure the station against surprize.

for the above purposes should not, in Colonel Lloyd's opinion, be less than from 120 to 160 Sappers, and a detail of Artillery, with two or more light guns, and that Officer remarked, that if there were two companies of Sappers of 90 privates each, they might be required to furnish the detail for the two guns, and a European Artillery Serjeant and Corporal added to the detachment would be all that was required for their efficiency. Colonel Lloyd foresaw no difficulty in procuring hill men, as those attached to the Assam and Sylhet Corps drew their recruits from the neighbourhood; adding that two guns at least ought to be stationed at Dorjéling and were indispensible; the prestige* of guns being of more avail among the mountaineers than would result from posting a thousand men, and their expence being rendered trifling by the arrangement of their being worked by a detail of the detachment. The Government has resolved to provide the Military force requisite for the protection of the place, and has further proposed to send a detachment of Sappers and Miners, together with two guns, to Dorjéling to remain there until the completion of the additional local levies of two companies of 90 men each, solicited by Colonel Lloyd, whenever a disposition to proceed to and occupy the grants of land shall be unequivocally shewn by the community.

CONCLUSION.

It will thus appear that the Government has failed in no endeavour thoroughly to explore the station of Dorjéling and ascertain its merits and capabilities. The Officers latterly deputed for this purpose have not been mere visitors of a day but have consecutively resided during all seasons of the year, and the reports obtained from them are the result of accurate observation specifically directed to the discovery of what was unfavorable as well as the contrary; they cannot therefore be regarded as the colored representations of sanguine theorists and speculators. Their number and variety afford sufficient assurance of the accuracy of the conclusions in which they agree and there can be no doubt that all of them correctly exhibit the views and impressions of the several authors. The public however will be able to judge for itself from the various

* The natives of the Cuttack Hills reckon a great gun equal to 500 men.

extracts here collected, and from the character of the gentlemen whose testimony is thus submitted of the degree of reliance to be placed on these reports. As its decision shall be favorable to the station or the contrary the Government will determine upon the prosecution of further measures for the establishment of a permanent Sanatarium or upon its abandonment. If this decision shall be favorable a Government Officer will be placed at Dorjéling, and Government repeats its assurance that the requisite arrangements will be made for its military protection, and for the preparation of a road from the plains. Colonel Lloyd is now engaged in exploring the line by which to lead this road.

The maintenance of the station as a permanent Sanatarium for Bengal will of necessity involve the Government in some expense, and *unless the British community evince the desire largely to avail themselves of the benefits it offers, and grants of lands are solicited freely and arrangements made for speedily occupying the different localities, the Government must not be expected to continue these expensive preparations.*

Colonel Lloyd has been empowered to receive applications and to fix sites for the grants of land for building purposes with reference to the priority of claims, and to the wishes of the parties keeping in view the convenient location of all who may desire to resort to the Sanatarium. The lots will of necessity be of limited size, and the rent to be reserved will be the fund from which the station must hereafter be supported and improved. The Government seeks no permanent revenue from the spot, neither does it hope to obtain any return for the outlay necessary for its first occupation, but the Government will of course expect that when once established it shall support itself, *and the want of a confident assurance of this will of necessity be regarded as evidence of ill success.*

Note.—Since these pages were sent to the Press, numerous applications for grants having been submitted to the Government, the parties have been informed of the intention of Government to establish the station, and the orders addressed to Colonel Lloyd on the occasion, with the reply made to the first applicants, will be found in the Appendix marked E. A Journal recently received from Colonel Lloyd is likewise added as an Appendix marked F.

APPENDIX AA.

Titalya, 18th June, 1829.

DEAR SIR,

I have the honor to acknowledge the receipt of your letter, dated the 10th instant, and have much pleasure in communicating for the information of his Lordship such facts as I am aware of respecting the climate, resources, position, and approaches, of the old Goorka Station called Dorjiling, and have little doubt the advantages it possesses as a Sanatarium, will be sufficiently apparent as it is so much more centrically situated than any of those now established as would make it available to every Station, and every European under the Bengal Presidency, within the arc of a circle extending from Benares to Calcutta.

Dorjiling is laid down in Arrowsmith's map as situated in E. lon. 88° 24′ and N. lat. 26° 1′, this latitude is erroneous, as it is at least 10 or 11 miles farther north. The mountain named in the map Gurdun Kutta, and its various branches and ramifications, forms the whole of the Sikhim Territory, within the hills, south of the Rummon River, it is about 8000 feet high and sends out spurs or ridges of nearly the same elevation in all directions; on one of those ridges running northward a considerable distance, Dorjiling is situated. On the 17th of February last, at 8 A. M., the Barometer at Dorjiling stood at 23.150, the mercury being at 52° of Farrenheit, and the air at 41°; there had been frost during the preceding night and the ground was covered with hoar frost; water kept in the open air had been congealed to the thickness of more than a quarter of an inch. Previous to my visiting Dorjiling I had been at a place called Gin, a few miles farther north and lower down on the same ridge of the mountain; while there, the weather became rainy, and for three successive days the snow fell so as to clothe the whole of the surrounding heights; on expressing to the natives my intention of proceeding to Dorjiling the day after the weather cleared up, I was told, it was quite impossible as the snow had not yet melted, which I saw was the case afterwards, on the ridges of similar elevation near me, and on going up the second day after the rain had ceased, I found snow still lying wherever there was a little shade to protect it, although those two days had been very sunshiny. I was also surprized to find at 3 P. M., when a small cloud passed over head, that it snowed, though the sun was shining very bright. The air in the hills is always extremely dry, and as far as my feelings could be depended on, I should say the climate

was similar to that of the south of Devonshire; the strawberry, violet, rasberry and blackberry are numerous; considerably lower down than this, the Thermometer during the day rose no higher than 45°, while I was there. I cannot say more respecting the climate, as I was there only six days altogether, in February last; though I wished to stay longer, I found if I did not descend to a warmer place, all my Bengalee coolies would run away, as there was severe frost every night and the hoar frost was not off the ground till late in the day, which made them extremely uncomfortable.

Dorjiling is situated as before stated on the northern spur or ridge of the Gurdun Kutta or Sinchul Mountain. Other ridges or spurs diverge at this spot from the Dorjiling range, by which means a considerable space of ground extends on the same elevation; this spot was formerly occupied by a large village or town, (an unusual circumstance in the country) and some shops were set up in it; one of the principal Lepcha Karjees resided here, and the remains of his house, and also of a gombah or temple (appropriated to a Lama, who is an incarnation, which is supposed to take place in the family of the Karjees) both substantially built of stone, are still extant; also several stone tombs or chatyas of different forms, Karjees and Lamas. A stream of water issues from the hill; a short distance below, from the place having been so long neglected, the space which was formerly inhabited is now covered by a grass jungle; but this is a dry withered kind of grass, and might be easily destroyed. Dorjiling is protected by the ridge of Gurdun Kutta, to the south from the vapours, &c. which might come up from the plains; to the northward there is no obstruction to a fine uninterrupted view of the stupendous snowy range.

As to the resources none can be depended on at first, but should a Sanatarium be established it must become a resort of people from all parts of the hills and even from Tartary, and I have no doubt be a place of great trade; at present it would be necessary to carry supplies* from the plains where they are plentiful; large flocks of sheep are fed on the neighbouring mountains which would find their way to market, and though from there being no villages in the country, the people living entirely in detached spots at considerable distances, and keeping fowls, bullocks, swine, &c. only for their own eating; no animal food for Europeans could at first be depended on, yet I am convinced plenty will be had in time. Materials for building, that is, timber, bamboos, grass, cane, &c. may be had in abundance, the natives set little value on money, none being current among them, all their dealings among themselves are carried on by barter,—wheat on the hills and rice lower down are cultivated, but could not at present be procured in any quantity.

A person quitting Calcutta ought in four days Dak at farthest via Malda, Dinagepore, Kantanugur, Yarbarree, &c. to reach Titalya; from hence to the foot of the hill on the east bank of the Balasun river, the distance is about

* There would be no difficulty in establishing a regular supply by Buniahs or Merchants, after a road shall have been made.

25 miles, and another six hours travel would place him in an European climate. The mountain of Gurdun Kutta, as I before mentioned, sends out ranges in various directions, one of these runs nearly south into the plains, and is more gradual in its slope than the generallity of these Hills: the road to Dorjiling on reaching the foot or commencement of this range, ought instead of running among the rocks and stones in the bed of the Balasun river to ascend the ridge; and on reaching the top proceed along it, and very nearly on the same level to Dorjiling, without any intermediate descent; it might be easily made practicable for loaded cattle, and hereafter no doubt wheel-carriages might proceed along it. From the foot of the hill to Titalya, the formation of a road would be quite similar to any other. The 8 or 9 miles next the hills would be through the forest which is quite open and free from underwood below; and the wood cutters continually form new tracks through it for their hackeries. The Mahanunda river is navigated in the rains by boats conveying merchandize as far as Sunyassheegatta, 18 or 19 miles from the foot of the hills, and I have gone myself in a dingy five or six miles up the Teesta river within the hills; there were some rapids to be passed. Timber is continually floated down it; 600 and 800 maund boats come up to Calleagunge on the Mahanunda, in the rains loaded, and might if there was any object in it come to Titalya, and similar sized boats proceed a considerable distance beyond Jelpiegoree on the Teesta.

The part of the Sikhim Territory in which Dorjiling is situated, was recovered by us from the Goorkas, and ceded to the Sikhim Government; it is the original country of the Lepchas, the chiefs of whom, the Karjees, have been settled in various parts of it. The present Sikhim Raja is a Bootea, and is at variance with some of these feudatories. If this part of the Hills was resumed by us, or ceded, the chiefs and people who have emigrated to Hypat and Bootan would instantly return, and as he is very tyrannical I dont suppose a single Lepcha would remain subject to the Sikhim Raja; I think it probable that they might also, in the space of a few more years, prefer the Christian to the Lama religion. However the jealousy and ignorance of the Government is such, and their dread of the Company's power so great, that considerable caution would be requisite in the negociation for possession of Dorjiling, and no doubt a handsome* douceur or some permanent advantage offered, would be the only means of succeeding in obtaining it; many tempting offers might however be made by a person well acquainted with the politics and views of the Raja, and the peculiar customs and habits of the people, if sent to confer with him personally, without which, I fear, nothing can be done.

* I am of opinion the Territory within and below the Hills ceded to Sikhim, at the close of the Goorka war, ought to be resumed, and if necessary the revenue agreeable to the present rent roll made good to the Raja in yearly cash payments; by proper arrangements this measure would prove profitable to our Government, and there could be no difficulty to a person aufait as to our political intercourse with Sikhim.

I have thus given you all the information I possess on the questions proposed in your letter, and beg if any thing respecting the place has been omitted, you will have the goodness to inform me, and I shall be happy to supply it as far as I am able. I only visited Dorjiling for six days in February last, and was immediately struck with its being well adapted for the purpose of a Sanatarium; and also from the facility with which I think a road might be constructed, so that it would engross all the trade of that country. The considerable space of ground is also another advantage, and should the climate prove too cold, Ging, which is below it, and to which there is very easy access, would remedy the evil: should it be viewed in the same light by his Lordship and should a Sanatarium be established there the advantage to every European either in or out of the service from Calcutta,* as far as Benares would be invaluable. Calcutta is, by the road I have before mentioned, 24 marches from Titalya, and via Hajipore, Dinapore is 23 marches distance: this shews how very centrical the position is to the Province of Bengal.

I am the only European who ever visited Dorjiling, or has spent any time in the Sikhim country, and I must say the estimate of the country and inhabitants formed by those who have only the accounts in Hamilton's Hindostan to guide them, falls far short of the truth; the country affords every variety of climate from perpetual snow to tropical heat; the people are simi-barbarous no doubt, but their manners and habits and their freedom from the prejudice of cast would cause them to assimilate with Europeans better than any of our native subjects; the Lepchas are quite a military people, and would make admirable soldiers and pioneers. The position would be a check by commanding an entrance into Nepaul and Bootan, and to conclude I am at a loss to perceive what disadvantages it possesses that are not common to all hilly countries in a greater degree, whereas its manifold advantages are too self-evident to require further elucidation, indeed I should scarcely be able to state them in the compass of a letter.

I should hope, Sir, to hear through you if His Lordship approves the plan suggested, as I am so thoroughly convinced of the great benefit which would thereby accrue to all that I most heartily wish to see it effected.

I have, &c.

(Signed) G. W. A. LLOYD.

To CAPTAIN BENSON,
&c. &c. &c.
CALCUTTA.

* Benares, Ghazeepore, Dinapore and Patna, Mullya, Bangulpore, Moorshedabad, Berhampore, Purneah, Tirhoot Dinagepore, Malda, Rungpore, Kishnagur, Chinsurah, Barrackpore, Dum-Dumma, Calcutta.

APPENDIX A.

JOURNAL, &c.

KEPT BY

ASSISTANT SURGEON H. CHAPMAN.

In July 1836, I was directed by Government to proceed to Titalya and place myself under the orders of Lieut.-Colonel Lloyd for the purpose of accompanying that Officer to Darjiling in the Sikim mountains after the termination of the rainy season.

In obedience to the instructions I left Calcutta by water on the 14th of August, and in four days arrived off Cutwa, where I detained my boats several days in order to complete some domestic arrangements; continuing my journey on the 28th I reached Malda on the 4th of September, and Titalya on the 17th; having left my boats at Kalliagunge 12 miles below Titalya, as the rapidity and shallowness of the Mahanuddee river rendered further progress by water exceedingly difficult. The journey from Calcutta was performed in 24 days, and might, I think, be accomplished in less time at the most favorable season. The Mahanuddee river may be navigable for boats of 6 or 800 maunds beyond Titalya during the very height of the rains, but I greatly doubt whether any craft of a greater burthen than 2 or 300 maunds can be sure of reaching so far towards their conclusion. I experienced the greatest difficulty in getting higher than Dololgunge in the middle of September, and during the cold and dry seasons all boats are obliged to stop there. The Mahanuddee being a mountain stream is liable to sudden rises and falls. At the end of September the river was fordable at Titalya; but heavy rain having fallen in the mountains and plains on the 1st of October it rose above ten feet in twenty-four hours.

Dololgunge is on the west bank of the Mahanuddee, and distant from Titalya 20 coss. Kishengunge on the east side of the river and some distance inland, 18 coss; from this latter place there is a road to Titalya, passable for loaded hackeries in the dry weather, and I believe it might be made practicable at all seasons. Canoes capable of conveying from 12 to 15 maunds can come as far as Titalya during the entire year.

Titalya in Latitude 26° 30′ N., Longitude 88° 20′ E. with an elevation 275 feet above Calcutta, and distant 20 miles from the foot of the Sikim mountains, is a considerable village on the Eastern bank of the Mahanuddee, and in the Rungpore district; it contains about 380 houses, and has a population of nearly 2500 persons; nine-tenths of whom are Hindoos, the remainder Musalmans;

the majority of the inhabitants are engaged in a small trade; many are occupied in weaving coarse cotton cloths, and the manufacture of mustard oil, and others are mere cultivators of the soil—immediately adjoining to Titalya to the S. W. and on the bank of the river is the small village of Futtiabad in the Poorneah district, it contains about 50 houses, with a population of 300, principally Hindoos. The country in the neighbourhood of Titalya is generally clear of jungle, and produces large quantities of rice, various kinds of dhall, hemp, mustard, and sugar cane—large herds of buffaloes and cattle are pastured to the north in the vicinity of the Morung, gunny bags are extensively manufactured in the surrounding villages, and immense numbers are annually exported to Calcutta, as also rice and ghee—the principal imports are salt, betel nut, and iron.

The natives consider Titalya a far more healthy place than either Rungpore, Dinagepore, or Poorneah. Fevers are prevalent in April and October; generally of the intermittent type. Goitre is not of very common occurrence at Titalya, but the disease is prevalent in the villages to the eastward, and more especially at and in the neighbourhood of Rungpore, where it is no unusual circumstance to meet with animals affected with it, and occasionally it appears as a congenital disease among them.

To the south of the village of Titalya and distant from it and the river two miles, are the ruins of the old cantonments, situated on an extensive and elevated spot; the first view appears very promising, but a careful inspection of the surrounding country explains at once the reason of the site having proved so unhealthy to the regular troops as to have led to the abandonment of Titalya as a Military post in 1829-30, the country to the south and south-west is extremely swampy with occasional patches of cultivation; to the east cultivation is more general, but the ground low and swampy, to the north the cantonments are connected with the villages by dry and elevated ground—the various buildings are all fast falling to decay, but the materials would probably be found useful towards the erection of bungalows or godowns, should Government determine upon establishing a Sanatarium at Darjiling; also for the building of bridges and repair of roads.

A Meteorological Register kept at Titalya for the month of October will be ound attached to the series from Darjiling.*

On the 6th of November a Jemadar's party from the 56th Regt. N. I. which had been ordered to accompany us to Darjiling, arrived from Dinapore. The weather now appearing quite settled, and all arrangements for our journey to the hills completed, supplies for the party, and our own heavy baggage, were sent on two marches ahead, and we left Titalya on the 11th of November at 11 A. M.

Titalya to Raneedangah, November 11th, 1836.

Proceeding N. and N. E. from Titalya the road runs close to the east bank of the Mahanuddee for a distance of six miles to the village of Cossimgunge—the country on both sides of the river is well cultivated and thickly inhabited, on the

* Vide Appendix. D.

west side the ground has an undulated appearance, the eastern side is level and lower ; the road however is in capital order and does not appear liable to inundations ; two and half miles from Titalya it crosses a nullah, and a second about a mile before reaching Cossimgunge ; these would require bridges to keep the road open for carriages during the rains. Cossimgunge is a long straggling village on the east bank of the Mahanuddee ; and immediately opposite to it on the west bank are the villages of Moonmullah and Pharseedewa, the latter in the Sikim territory—the banks of the river have here a considerable elevation. At the northern extremity of Cossimgunge are the ruins of a redoubt which was occupied by a small force from Titalya during the Nepal war. The road after passing through Cossimgunge crosses to the west bank of the Mahanuddee, the river is fordable during the dry and cold seasons, the bed is a firm sand mixed with small stones, the water beautifully clear and its greatest depth not exceeding three feet in November—reaching the west side the road passes between the two villages before mentioned, turns to the right, enters the Sikim territory, and runs for about a mile along the river bank, and then proceeds in a straight direction avoiding the windings of the river, but at no great distance from it, and after a course of six miles arrives at Raneedangah. The country from Pharseedewa is neither so well cultivated nor so thickly inhabited as on the opposite side of the river ; the soil appears excellent for about three miles, but on approaching Raneedangah the surface of the ground is very uneven and cultivation confined to the lower spots, the higher and dry ground being covered with a short grass; there is no heavy jungle to be seen. The road is quite passable for wheeled carriages in the dry season, it crosses several small nullahs, and about one and half miles from Raneedangah a rather considerable one called the Rangapanee, these would require bridges, and there is plenty of wood in the neighbouring forest to build them with ; near to Pharseedewa, about two miles to the left of the road, is the low hill where the Nepalese stockaded themselves during the war.

Arrived at Raneedangah at half past two P. M. distance from Titalya twelve miles ; —Raneedangah is a dry and elevated spot close to a clear and rapid rivulet.

From Raneedangah to Teprah Munni.

November 12th,—We were much inconvenienced this morning from want of coolies ; many of the men we brought with us from Titalya absconded during the night ; started at quarter to 10 A. M. The road, which is very tolerable runs in a northerly direction over a light sandy soil, the surface of the country is uneven and intersected by several nullahs, (dry in November) which would probably require bridges in the rains, cultivation is very scanty and entirely confined to the low spots, and few habitations are to be seen. Three and half miles from Raneedangah cultivation ceases, and the road enters the Morung forest, through which it runs in a N. N. W. and N. W. direction for about four miles to the bank of the Balasun, the elevation of the

ground gradually increasing. The soil after entering the forest is very shallow, and beneath it appears a bed of stones, which increase in size on nearing the mountains; the trees are principally saul and the acacia catechu is plentiful, there is also a high grass jungle; but no standing water or swamps are observable. The Balasun is a rapid mountain stream of very considerable breadth, and at the place where the road crosses it running in an easterly direction—the depth of water in November is not more than two feet, and it may be forded the greater part of the year, but in order to maintain an uninterrupted intercourse between the hills and plains a bridge would here be necessary or, what would probably be better, to turn this river into its old channel, which Colonel Lloyd states might be done without much difficulty. The banks have but a trifling elevation, and the bottom is composed of loose stones, many of which are of great size—for some distance before reaching the Balasun there is less undergrowth in the forest and the trees are principally sissoo. Crossing the Balasun, the road runs along its left bank in a N. W. direction, and shortly turns to the north enters the Nagree pass, and is continued with a gradual but perceptible ascent to Teprah Munni, a distance of between 4 and 5 miles—the character of the forest after crossing the river is quite changed, the trees are in greater variety and differ from those in the Morung, the undergrowth is principallyalong thin grass, the road is passable for loaded bullocks, but can scarcely be considered so for hackeries without some improvements. Immediately after reaching the left bank of the river the spur of the mountain is observed, up which it has been proposed to carry a new road to Darjiling, the said spur runs parallel to the river gradually increasing in elevation, and at Teprah Munni appears many hundred feet above the present road.

Arrived at Teprah Munni at half-past 1 *P. M. distance from Rancedangah, twelve or thirteen miles.*

November 13th,—Halted, the coolies employed taking on the supplies to Dimali Golah. This place, (Teprah Munni) is a spot cleared of jungle on the left bank of the Balasun, and about fifty or sixty feet above its bed—elevation 1300 feet. The sepoys, our servants, and the coolies, much annoyed by the attacks of a small fly scarcely so large as a gnat called by the Natives "peepsa;" it is said not to be found in cultivated places.

November 14th,—Halted, coolies conveying supplies to the Golah, examined the road for about two miles in the morning, and in the afternoon attempted to ascend, from Teprah Munni, the ridge alluded to on the 12th; after gaining an elevation of 200 or 300 feet was obliged to descend, the increasing perpendicularity rendering further progress unsafe—the trees on this ridge are of gigantic size.

Teprah Munni, to Dimali Golah, started at $\frac{1}{4}$ *to* 10 *A. M.*

November 20th,—From Teprah Munni the road descends to a small rivulet; which we crossed by stepping from stone to stone, and is then continued through

thick forest, and over rocks and uneven ground for about two miles to the Balasun, across which there is a rude bridge of trees, and bamboos laid from stone to stone to the right bank, along which the path runs for a short distance, then descends into the bed of the river, in which it is carried some hundred yards, and after passing between perpendicular rocks forming the channel of the river, ascends by the bed of a torrent and over rough and rocky ground to Jamdewar, a name given to a narrow fissure in the rocks; from this point the road passes through a dense forest of most magnificent bamboos to Dimali Golah. Nothing can possibly be imagined more objectionable than the whole line from Teprah Munni, in many places the path is almost dangerous, and running as it does some distance in the bed of the river must be impassable in the rains—the country which it traverses, covered with forest and rank undergrowth, cannot be otherwise than extremely unhealthy during a considerable part of the year.

Arrived at the Golah at 1 P. M. *distance from Teprah Munni probably five miles.*

November 16th,—Halted, supplies going forward to Samdong—at Dimali Golah we found a few old huts standing which are annually repaired by the Lepchas, as the place is resorted to by the Bengallees, and hill people from December to May for the purpose of bartering their several commodities. It is a horrible spot surrounded by the most luxuriant grass jungle and being encircled by lofty hills there is no ventilation, and the atmosphere is damp and offensive—two men are ill with intermittent fever; and more will be on the sick list if we remain here many days, musquitos and peepsas in swarms.

17th,—Halted, coolies carrying the supplies to Samdong; owing to the impenetrable jungle unable to see any thing of the surrounding country; the weather has been overcast the last two days, and the air cold and damp, three men are ill with fever.

18th,—Halted, coolies employed as yesterday.

19th,—Halted to enable the coolies to rejoin us from Samdong. The sick men are better; very unwell myself.

Dimali Golah to Samdong, left the Golah at half-past 9 A. M.

November 20th,—The road descends over rocky ground through tree and bamboo forest, and thick grass jungle, for above a mile to the Balasun, which we crossed by a few bamboos laid from rock to rock; reaching the left bank it continues by the side of the river a short distance, then proceeds through grass jungle to Goolgoolia Munni, a romantic spot where the river, running close under lofty perpendicular rocks on its right side, has a considerable depth of water and is full of fish, about 200 yards from this place the Rambong river enters the Balasun from the west. The road is again carried across the river to the right bank and over rocks and through thick jungle to the foot of a lofty hill called Toomba Bans, and up which the path

runs—this ascent is excessively steep and difficult. From the top of Toomba Ban, part of the Sinchul range may be distinctly seen bearing S. S. E.; the remaining portion of the road to Samdong is a succession of ascents and descents, eighteen in number, and the Balasun has to be crossed three times more; the fifth crossing from the Golah is effected close to the steep bank on which Samdong is situated. This was a most fatiguing march, and occupied us five hours; half way up Toomba Bans met a party of Lepchas, who accompanied us to Samdong and made themselves very useful in building huts, &c. The road from Teprah Munni to the Golah is bad enough; but from the Golah to Samdong is far worse, and not susceptible of improvement; the country through which it passes is also highly objectionable.

Arrived at Samdong at half-past 2, *distance from Dimali Golah five or six miles.*

November 21st,—Halted, the coolies returned to the Golah to fetch our remaining baggage. Samdong is a jungly spot on the left bank of the Balasun, and very little if any superior to the Golah as a halting place, its elevation is 2750 feet, the weather perceptibly colder, sick men better. Swarms of peepsas.

22d,—Halted, the coolies returned in the evening from the Golah. Sick men are better, there is evidently some intrigue at work to retard our progress, the road to Tikri Bong was yesterday reported impassable; in the afternoon (this day,) I examined it for a considerable distance above Samdong, and found the path far superior to any part of the road since leaving Teprah Munni, and merely requiring some long grass to be cut down in a few places.

23d,—Halted, coolies sent on ahead to clear the road, which I again, in company with Colonel Lloyd, examined, and to some distance beyond the part explored yesterday. A very little labour will render it passable for the coolies with their loads; met two Lepchas bringing a letter for the Colonel from the Dewan of the Sikim Rajah, informing him that we are to have our throats cut by the Nepalese if we proceed to Darjiling; they also told us that the road from Tikri Bong to Darjiling is in tolerable good order; the sick men are better.

24th,—Halted, coolies employed as yesterday.

Samdong to Tikri Bong. Started at quarter to 10 *A. M.*

November 25th,—Immediately after leaving Samdong the road proceeds in a northerly direction up the mountain ridge, and is in some places excessively steep, but by no means so difficult as the ground passed over in our two last marches, the country on every side dense forest and jungle; after a continued ascent of two hours gained the crest of the ridge along which the road runs to Tikri Bong, where we arrived at half past 1 P. M. and immediately busied ourselves in preparing some shelter for the night, which proved severely cold, the Thermometer at 8 P. M. 47°. The elevation of Tikri Bong, according to the late Captain Herbert's calculations, is 5559 feet; the forest is here very thick and composed entirely of trees with but little undergrowth.

26th,—Halted, weather clear and cold, Thermometer during the night 37, at 8 A. M. 45°. The view from Tikri Bong is open to the south, and looking down the Nagree pass, the plains are visible. In the afternoon was about two miles on the road to Darjiling, the ascent is nearly continual and rather steep, the path however is in very tolerable condition ; stopped at a small stream which crosses the road, here the Barometer at 3 P. M. stood at 23°064, Thermometer 53°5 ; at Tikri Bong, at 4½ P. M. Barometer 23°950, Thermometer 54°. Raspberry and blackberry bushes abundant in the jungle. Several Sepoys and some of our servants attacked with fever ; very few peepsas here.

27th,—Halted, coolies gone to Samdong for our supplies, a party of Lepchas employed building a hut to receive them. Weather clear and pleasant. Thermometer during the night 40°, at 8 A. M. 46°, at 4 P. M. 55°. Several fresh cases of fever, but all doing well.

28th,—Halted, the weather continues fine and clear, Thermometer last night 40°, this morning at 8° 46 ; the coolies employed bringing up the supplies from Samdong ; at noon accompanied Colonel Lloyd on the road to Darjiling, which we examined for about a coss beyond where I explored on the 26th,—passed two streams of water running across the path, the farther is called Oongool ; beyond this the road runs up the south side of the Sinchul mountain, and is very steep and fatiguing, the top of the Sinchul ridge is the highest point on the road to Darjiling ; on gaining this a most magnificent scene opened to our view—beneath us appeared the basin in which Darjiling is situated, and beyond to the north and extending to the east the snowy range. The sick men are all doing well.

29th,—Halted, half of our coolies have run off, the remainder are employed bringing up our baggage from Samdong. The weather cloudy and very chilly. Thermometer last night 40°, this morning 46°. Two more of the Sepoys and several of our servants attacked with fever,—this is what I predicted would be the case.

30th,—Halted, some of our supplies still remaining at Samdong, a cold misty day. Thermometer last night 40°, this morning 47° ; the sick are going on well.

We march for Darjiling tomorrow.

Tikri Bong to Darjiling.

December 1st,—A fine clear morning—at 7 started off some of our baggage and supplies. One Havildar, one Naick and ten Sepoys gone on with them—the remainder of the Sepoys, including the sick men, all much better, will remain here for the present. At half past 9 left Tikri Bong, the road to the top of the Sinchul has already been described,—reached Oongool at half past 10 A. M. Barometer here 23°092, Thermometer 46°, at the top of the Sinchul ridge at quarter past 11, Barometer 22°526, Thermometer 46° ;—from this point the road descends the north side of the mountain, running for above a mile through very thick forest and jungle, and then proceeds up the steep face of another hill, and on

gaining the top is continued along its crest, gradually descending through forest and bamboo jungle to Darjiling, where we arrived at half past 1. The distance from Tikri Bong, is probably nine miles; part of the forest on the ridge leading from the Sinchul to Darjiling, has been extensively burnt—between Tikri Bong and the Sinchul all the bamboos appear to have died and the forest is consequently more clear of undergrowth than in any other portion of the road. Found two or three huts at Darjiling erected by order of the Rajah; in one of which we passed a wretched night, none of the coolies having arrived, we had neither food nor bedding, and the cold was very severe.

2d,—A clear frosty morning; at sunrise proceeded a short distance on the road to Tikri Bong, and found all the coolies, with the Sepoys, collected round fires in the forest, made them move on immediately, and in half an hour every thing we had despatched yesterday morning was safe at Darjiling.

3d,—The morning overcast, and no frost last night, heavy clouds collecting at noon—a party of Lepchas employed building some huts, coolies clearing jungle, &c. at 2 P. M. light rain and again at 4 P. M. strong wind from N. and N. W., distant thunder during the night, and early on the morning of the 4th; our sick men better.

4th,—The morning overcast, the day cloudy, with occasional sunshine; rain in the evening, and at night—part of the coolies have returned to Tikri Bong for our supplies, the remainder employed cutting jungle, &c. the Lepchas building huts.

5th,—A bright frosty morning, water exposed at night frozen, the snowy range from N. N. W. to E. b S. beautifully distinct; Kanxching-jinga nearly due north from Darjiling—the vallies beneath us filled with a sea of white fleecy clouds, above which some of the tops of the higher mountains appear like islands. Snow has fallen to the W. and N. W. during the night, the tops of the high mountains near us are white with it, the day occasionally overcast, evening cloudy and cold, light rain after 8 A. M. The Lepchas are building me a hut—coolies arrived with supplies from Tikri Bong before 3 P. M., another gang busied here cutting grass, &c.

6th,—Cloudy at sunrise, no frost, noon overcast and distant thunder to the W.; at 2 P. M. a snow shower on the mountains N. W. of Darjiling, a few flakes fell here, to the east and south clear and sunshine, evening clear to N. W. and S., cloudy to E.; at 7 P. M. thunder to E.; at 8 P. M. overcast and sleet falling.

7th,—Splendid bright morning not a cloud to be seen, ground covered with heavy frost, and ice quarter of an inch thick. Thermometer last night 33°; noon and evening bright; the day warm and pleasant; snowy range visible all day; much snow has fallen on the mountains in the west. People employed building huts, &c.

8th,—Very hard frost last night; thick ice this morning; weather beautifully clear all day; the coolies gone to Tikri Bong to fetch our supplies. The sick are all recovering.

9th,—A fine bright frosty morning, day and evening clear; coolies returned from Tikri Bong with supplies. People busied on building, &c.

10th,—The weather is splendid, coolies gone to Tikri Bong.

11th,—Fine bright frosty morning, day and evening brilliantly clear; coolies have returned with the last of our supplies; and the Sepoys have joined us from Tikri Bong. The sick have all recovered.

12th,—The weather continues delightful; the greater part of the coolies have this day returned to the plains.

13th,—A clear frosty morning, noon calm and cloudy to the west, evening clouds to W. and N. W. wind N. W.

14th,—A fine bright frosty morning, a few clouds under the snowy range, noon wind westerly and cloudy over the mountains in that direction, evening wind N. E. and generally clear.

15th,—Last night was cloudy, no ice or hoar frost this morning which is overcast and very cold, noon and evening overcast, wind W. clear after sunset.

16th,—A bright frosty morning, the snowy range does not appear ten miles from us, wind N. at sunrise, at noon a few clouds on the tops of the mountainss to W. and S. W. wind W. bright all day.

17th,—A bright frosty morning, strong wind from N. before daybreak and after sunrise, at noon wind W. a few clouds on the mountains W. and S. W. evening wind W. clouds still hanging on the tops of the mountain W. and S. W. fine bright night.

18th,—A brilliant frosty morning, wind from N. before daybreak W. at sunrise, noon and evening bright, wind W. night clear.

19th,—A fine frosty morning, wind N. E. at sunrise, at noon wind W. clouds hanging on the mountains W. and S. W. evening clear and calm, night cloudy to N. and N. W. and hazy.

20th,—Hoar frost but no ice this morning, wind S. and weather warmer, clouds to N. above the snowy range, noon wind S. E. cloudy to the south, evening clouds to W. and N. much warmer in the middle of the day, cloudy after sunset and at night.

21st,—No frost last night, cloudy at daybreak, wind W. and N. noon and afternoon cloudy, night cloudy and occasionally moisty. A Lama with attendants arrived here to-day.

22d,—Morning cloudy and moisty, calm here but clouds are moving rapidly from the west, noon cloudy, in the afternoon clearing, wind S. W. several Bhoteas arrived here to-day on their way to the Ganges, they are dirty wretches.

23d,—A fine frosty morning, wind S. W. day warm and pleasant though frequently overcast, evening overcast, wind W. The Lama paid me a visit to-day and shewed great curiosity, he was much pleased with a Microscope, Camera Obscura, and other things I shewed him.

24th,—Last night was cloudy, no frost this morning which is overcast with occasional sunshine, noon overcast, strong wind from S. W. and very cold, evening calm and generally overcast.

25th,—A clear frosty morning, afternoon overcast and wind N. evening cloudy.

26th,—A bright frosty morning, wind N. noon clear and wind W. clear all day.

27th,—A clear and frosty morning, wind N. N. E. noon calm, cloudy S. and S. W. afternoon heavy clouds W. and S. W.

28th,—A fine frosty morning, day fine, but occasionally overcast, evening very cold—wind S. W.

29th,—Fine clear frosty morning, wind N. N. E. The weather feels warmer when the wind blows steadily from the snowy range than when from the S. and S. W. Noon clear, warm and pleasant—wind N. N. E. fine clear night.

30th,—A fine bright frosty morning, wind N. and the weather feels warmer, the ice this morning thicker than we have before seen it, but the night Thermometer was not lower than 58° 5′. At 9 A. M. wind N. the atmosphere very dry. Thermometer 51°. Temperature of an evaporating surface 33°. Dew point by Hygrometer 29° 31′. A clear frosty morning, wind S. the day cloudy, wind from W. and S. W. weather much colder—evening cloudy, wind S. W.

Some coolies have this day arrived from the plains.*

* There is no further *journal* of Dr. Chapman's amongst the official records—but vide Diary, Appendix C.

APPENDIX B.

Itinerary and Journal kept by Lieutenant Colonel Lloyd on the march to and at Darjiling, 1836-37.

On Friday, November the 11th, 1836, we left Titalya at 11 A. M., and proceeded along the eastern bank of the Mahanunda* river, in a general direction nearly north for about six miles, as far as Cossimgunge; between this place and Titalya, we crossed two nullahs, called the Runchundee, and the Tirnie, over the first a temporary bridge was thrown; permanent bridges might with facility be constructed for both of these nullahs; at present there is not above one and a half feet water in either; but in the rains they are both occasionally unfordable for hackeries. At Cossimgunge we crossed the Mahanunda river, the deepest part being about two and a half feet water. On the western bank, passed through two villages, Moondmalla in the Purneah District, and Phansedewa in the Sikim Morung, one is a continuation of the other; and the boundary of the Company's territory, runs through the middle: the road from hence runs nearly north, and parallel to the general course of the Mahanunda, though only for about the first half mile on the immediate bank; at three miles from Phansedewa we passed a large tank on the right called Roopun Diggee, and at two miles further crossed a nullah called Rangapanee, from whence in one mile's farther travelling we reached our halting place Ranneedanga, on the south bank of the Lutchkanuddee; in the nullah called Rangapanee we found about one and a half feet of water.

The road from Titalya to Cossimgunge is in the Rungpore District, and kept in excellent order—it continues the same all along the eastern bank of the river up to the forest at but a short distance from the foot of the mountains and over high ground through a cultivated country; on crossing the river we found a road had been constructed for us by the Sikim Raja's Officers, which was very good and perfectly passable for wheeled carriages to the very foot of the mountains; indeed all our supplies of grain, &c. were conveyed to Tippera Munny on hackeries, and that place may be reckoned within the hills, and is at an elevation of about 1300 feet.

On the 12th at 10 A. M. we marched from Ranneedanga, crossing the Lutchkanuddee; at setting out the road runs along elevated sandy ground, with patches of stones and gravel during the whole of this stage; after about four miles we entered the forest, and at seven and a half miles crossed the Balasun river, parallel to which the road continues; and at five and a half miles farther we reached our bivouac on the high bank called Tippera Munny.

* Some term it Mahanuddee, and others Mahanunda.

The Balasun river, about twenty years ago, forced itself a new passage to the eastward at the place where we crossed it, forsaking its ancient channel which ran nearly south under Hansguar hill, and joined the Mahanunda below Titalya, near Sonapore, in the Purneah District; the new channel joins the Mahanunda near Silleegoree, in Dabgong, in the Rungpore District, above twenty miles above its former point of junction. Many of the rivers hereabouts have altered their channels in a similar manner, and all have taken an easterly direction, as if the country to the westward had been in some degree upheaved. I may instance the Teesta, which is a very large river coming from beyond the snow; it formerly, and when Rennel's map was constructed, flowed nearly south past Dinagepore, and threw so large a body of water into the Ganges near Malda, as must have tended to dam up, or in some degree raise the Ganges so as to throw a greater volume of water down the Bagiruttee and Jellinghy, and no doubt contributed to keep the beds of those rivers deeper than they now are: but within the last fifty years (the exact period I cannot ascertain) the Teesta has forced itself a new channel to the eastward, commencing a little way south of Julpiegoree, and now runs north of Rungpore and joins the Burrampooter and Jeni near Jumalpore. If the Teesta could be sent again down its ancient channel it would be more effectual in rendering the navigation of the Jellinghy, &c. permanent throughout the year, and I imagine at much less expence than any canal, and the project seems quite as practicable as digging a canal at Tippera Munny: we found that the Sikim functionaries had, with the assistance of a number of Méches, (the people who inhabit the forest) erected half a dozen huts, in which were stored the grain which I had dispatched from Titalya on hackeries, and from hence every thing must be conveyed by men as there is no road practicable for cattle till after reaching Samdong, from which place I think carriage bullocks might be used if they could in the first place be got to Samdong. 129 coolie loads of grain were despatched this day from hence to Demaligolah, the coolies returned in the evening.

Sunday, 13th November, 1836,—Halted this day to enable the coolies to convey supplies from hence to the Golah; sent back the elephants, hackeries and carriage cattle, as they can proceed no farther, and we ourselves must henceforth proceed on foot; 100 coolie loads of grain sent off to the Golah this morning, the distance is so short that the men ought to make two trips in the day; but I fear I shall not be able to get them to do so; thirty-nine coolie loads dispatched in the evening.

Monday, 14th November, 1836,—Halted for the same purpose as yesterday; eighty loads carried by 102 men, dispatched to the Golah this morning, thirteen sent by the Sirdar, and thirty with Sepoys' baggage.

Tuesday, 15th November, 1836,—Marched at 9¾ A. M. and shortly after crossed the Balasun by a bamboo bridge. The road leading north along the kadur of the Balasun for about two miles, when we reached a part where the river

forces its way through the hills, the opening not being above 120 or 130 feet, with perpendicular rocks on each side; a chain bridge might be easily thrown across. Shortly after leaving this spot we quitted the bed of the river and turned to our left along the course of a small stream that here joins the Balasun, called Manjo. After proceeding a short distance westerly we turned short to the right, northerly, and ascending in a slight degree entered a bamboo forest, which continues from hence to Demaligolah; after travelling about half a mile from the commencement of the bamboos we had to ascend the ridge of hill which runs down to the Balasun called Jundoowar and Durrumdoowar, and from thence the road continues slightly indulated, but on the whole descending a little till it reaches Demaligolah the end of our day's journey. Here were the remains of the huts occupied last year by the merchants and their merchandize, but in a decayed condition; they were however occupied by our party, and we ourselves took possession of the Goldar's chany or house built on a raised platform, in which there were two rooms and in a tolerable state of preservation, at any rate habitable. The coolies had to return from hence to bring on their own food.

Wednesday, 16th November, 1836,—After the arrival of the coolies this morning they were mustered, and their names written down, their number amounted to 165. It being too late to dispatch any of the supplies, and the weather being cloudy, the coolies were employed in cutting grass and bamboos, and repairing one of the Golah houses, in which to store grain, &c. to preserve it from being wet. Sent one Chupprassee and two Lepcha men to endeavour to clear a space and erect a hut for the grain at Samdong, and having heard there are some Meches gone on, they are directed to be detained there for the purpose of assisting.

Thursday, 17th November, 1836,—Very early this morning 141 coolies were dispatched with loads to Samdong with strict orders, that they are, after depositing their loads at Samdong to return here in the evening; three Chupprassees sent with them to enforce these orders, but the people have such a habit of sitting down to smoke on the road whereby they loiter away the time, that I fear I shall not be obeyed as to their returning to-day, the distance is not more than six miles; nine coolies were reported sick to-day. Only half the coolies returned this evening, and in a perfect state of mutiny; nine of them deserted during the night.

Friday, 18th November, 1836,—Dispatched the half of the coolies with loads who had returned last night, and the other half having arrived about half past ten, they were allowed to cook and eat and then sent off with their loads. The Chupprassee sent on to construct huts returned this morning with intelligence, that the Meches whom he met on the road, after having erected two small huts, deserted, having been called off by two men sent for the purpose by the Curtar, or headman of the Sikim Raja, in the morning. No coolies returned to-day.

Saturday, 19th November, 1836,—The coolies did not return from Samdong till the day was so far advanced that I considered it useless to dispatch them again this day, more particularly as I purpose proceeding myself to-morrow, and there are some sick men to be carried, so I have allowed them a halt to-day; towards evening ten or eleven fresh men arrived.

Sunday, 20th November, 1836,—Marched from Demaligolah this morning at about 9½ A. M. After proceeding about two miles along the bed of the river, and crossing it twice by temporary bamboo bridges, we commenced a very steep ascent called Toomba Bans, which occupied us forty-five minutes; about the middle of this steep ascent we were met by ten Lepchas sent on to meet us with a letter by a man called Chong Toompun, whom they left with some more men on the other side of Darjiling; as the letter was in the Bootea language it was Greek to us, however we sent on the Lepchas with orders to clear a spot on which the tent could be pitched at Samdong; and followed them ourselves, ascending and descending about fifteen ravines or water-courses on the eastern shoulder of the Naggree hill, till we at length came again into the bed of the Balasun river, along which we proceeded, crossing it three times more, and arrived at Samdong, on its eastern bank, after a very fatiguing march of four hours and three quarters. Here was an open hut erected for the grain, and a small space of ground cleared, on which the Sepoys, tent was ordered to be pitched. The Lepchas we had sent on were clearing a space on a bank above for my tent, and I got them to erect a hut for Dr. Chapman, after which they seemed quite satisfied at receiving a bottle of brandy, and some salt. Many of the coolies did not arrive till very late.

Monday, 21st November, 1836,—Halted this day, the coolies having to go back for their own supplies, and some of ours which could not be removed yesterday for want of men. Having ascertained that the ten Lepchas would not assist us by clearing the road of jungle, I told them they might go back to the person who sent them, and tell him to send people to do so; but I don't think he will do it, as I hear it is the Raja's intention to throw every obstacle he can in our way; he might as well have refused to give us the place in the first instance; however we shall see.

Tuesday, 22d November, 1836,—Halted, the coolies not yet come up. This place, Samdong, being east of the Balasun river, is part of the country given to us by the Sikim Raja; there are at present no inhabitants. The peepsahs here are very annoying, and the natives suffer extremely from their bite; the peepsah is a very small fly that bites or inserts its proboscis through the skin in a similar manner to the musquito, but makes no perceptible buzzing noise like that insect, neither does it appear at night; a slight stinging sensation makes you sensible of having been bitten, and on looking at the spot a small drop of blood is perceived on the surface of the skin; if let alone the bite is no further troublesome, except from a slight itching; but if scratched it inflames and finally forms a scab or sore, heat increases the itching and irritation; the

natives of the plains having their bodies exposed are great sufferers from this insect, particularly in the legs and ancles, and as they sit round a fire to keep themselves warm, they scratch their ancles, and legs till they become inflamed, swell and break out into sores, which are said to be very painful and the sufferers are scarcely able to walk ; it is said people have been killed by these insects from lying down exposed in the day time, when suffering under an attack of fever which rendered them careless. May not the fever have been the cause of their death ? However it is within my knowledge that Sepoys have been sent into Titalya from Naggree with fever, caused by the bites of the peepsah ; those who are well clothed do not experience this inconvenience.

Wednesday, 23d November, 1836,—The coolies were sent on this morning to clear the road of jungle ; they went on about two-thirds of the distance, and having met some eight or nine Lepchas coming down the hill, clearing away the jungle, they returned without doing as they had been ordered to do, but took care not to come in till evening, when they knew they could not be sent off again. One day has thus been lost.

Thursday, 24th November, 1836,—The coolies were sent off under their sirdar this morning to clear the road, as until this has been done banghys cannot be carried ; they returned in the evening, having made it passable half way to Tikribong ; as the Lepchas have nearly cleared the other half, I shall march to-morrow.

Friday, 25th November, 1836,—Marched this morning at quarter to ten, an ascent all the way, but in many places very easy so that I rode a horse the greatest part of the distance, still there are some steep places where I dismounted ; we found the road, with the exception of a small distance, about half way, well cleared, and were three hours coming ; some ten Lepcha soldiers who came yesterday to escort us, and whom I had sent on to clear a space and erect a house at Tikribong, had done the former sufficiently for the small party with us, for we had left the Sepoys at Samdong to follow hereafter, but as yet there was no appearance of any habitation ; the coolies, with the exception of twenty-two and the twenty Tubburdars,* were ordered back to bring up supplies to-morrow.

Saturday, 26th November, 1836,—Early this morning the twenty-two coolies, the Tubburdars and Lepchas were employed in cutting and collecting wood, bamboos and cane for the erection of a house to shelter the supplies, and by the evening about half the building was got up ; a very small portion of the coolies made their appearance to-day with the supplies, and were sent back forthwith for more.

Sunday, 27th November, 1836,—The house was finished to-day about noon, the Tubbuldars were then sent on to cut trees fallen across the road, and the twenty-two coolies employed in storing the grain in the house ; about one-half of the supplies were brought up to-day, and the coolies ordered back immediately for more ; the house having been so quickly completed the Lepchas were rewarded

* Tubburdars, Axemen.

with five rupees to the ten men, and a bottle of brandy, as it was entirely through them that it was so quickly done ; our native servants and followers feel the cold here very much.

Monday, 28th November, 1836,—Halted, and had all the coolies employed in bringing up the supplies ; they make the trip up, and go back during the day with ease.

Tuesday, 29th November, 1836,—The same as yesterday ; the guard came up to-day ; four of the men so ill as to be obliged to be carried ; fifty-six coolies employed in carrying the Sepoys' baggage.

Wednesday, 30th November, 1836,—The remaining things were brought up from Samdong this day.

Thursday, 1st December, 1836,—Marched at nine o'clock this morning, taking with us half the guard ; we reached Darjiling in three hours, but neither guard nor any of the coolies have made their appearance.

Friday, 2d December, 1836,—No dinner and no bed yesterday, luckily there was a Lepcha house which had been built last May, by order of the Raja at my request ; we passed the last night in it sitting round a fire, but still felt it extremely cold and uncomfortable ; the ground was this morning covered with hoar frost. The coolies and guard made their appearance about nine o'clock ; they had stopped within fifteen minutes walk of this, and I suspect from no reason other than their cowardice as they had no excuse to offer for not having come on last evening ; there are a few Lepchas here sent by the Raja ; they had constructed some slight huts for us, for which I paid them, but more durable habitations must be made ; Dr. Chapman has agreed with these men to make him a hut fit to reside in ; they are also directed by the Raja to assist in constructing a habitation for me.

Saturday, 3d December, 1836,—The coolies were divided into two parties, one of which was kept here to clear ground and erect huts for the people, &c. and the other was dispatched to bring up supplies from Tikribong, allowing them one day to go and one to come back.

Sunday, 4th December, 1836,—The same as yesterday.

Monday, 5th December, 1836,—The two parties of coolies are alternately sent for supplies and kept here at work.

Tuesday, 6th December, 1836,—As yesterday.

Wednesday, 7th December, 1836,—Ditto ditto.

Thursday, 8th December, 1836,—The whole of the coolies were sent off to-day to Tikribong for supplies.

Friday, 9th December, 1836,—The coolies dispatched yesterday to Tikribong returned to-day at 3 P. M.

Saturday, 10th December, 1836,—The coolies were sent off again to-day to bring up every thing now at Tikribong, and the guard there was ordered to join the party here.

Sunday, 11th December, 1836,—Every thing reached this to-day just one month after quitting Titalya, and I calculate we have sufficient provisions now to last us for at least three months.

Monday, 12th December, 1836,—As the coolies have this day completed their month and have no food remaining, I am under the necessity of allowing them to return to the plains, and for the purpose of providing food and clothing, of advancing them one month's pay at the rate of four rupees a month, and it is with considerable difficulty I have induced them to take that amount. If I could have procured Lepchas and Booteas I would not have consented to give more than three rupees, but not being able to do so I am obliged to give four, or I shall stand a good chance of being left to shift for myself. The coolies are to return by the 25th with one month's food each man, but instead of hiring the 200 men I have selected 100 of the strongest and to appearance the hardiest among them.

Sunday, 18th December, 1836,—The week has passed without any thing remarkable to record, nothing is doing as there are no workmen, and nothing can be done till the coolies return.

Thursday, 29th December, 1836,—The coolies returned from the plains this day in number ninety-two, of these forty are stationed on the road to bring up more supplies, viz. ten at Tippera Munny, ten at Toomba Bans, ten at Malbans, a short distance above Samdong, and ten at Oonghool above Tikribong, the remainder (fifty-two) are to be kept here to clear jungle, form a reservoir at the spring, and execute various jobs which are required in the way of erecting huts, &c.

Tuesday, 10th January, 1837,—This morning at daylight it commenced snowing, with thunder and lightning, and by noon, at which time the weather cleared up, the snow was one foot deep; this has of course put a stop to all work; the poor coolies are wretchedly off from want of clothing and shoes; if the snow had continued much longer they must have been permitted to descend to a warmer climate. The Lepcha vakeels sent by the Sikim Raja, and who made their appearance yesterday, have been obliged to go down the hill beyond Ging, as they had not sufficient shelter where they were bivouacked in the forest.

Sunday, 15th January, 1837,—The snow is almost all melted in the immediate vicinity and the coolies on the road are again coming in with the supplies; the Lepcha vakeels have likewise returned to their bivouac.

Tuesday, 17th January, 1837,—Marched this morning to Samdong. Shortly after I quitted Darjiling I found the ground still covered with snow on the higher parts of the mountains; this was very distressing to the naked feet of the poor coolies; at a little above Tikribong I quitted the snow and experienced a very perceptible difference in the temperature of the air, there seemed to have been a violent storm of wind, on the lower part of this the southern side of the mountains, as many large branches of the trees had been blown off and in some places obstructed the road; I reached Samdong at 4 P. M.; a fatiguing march.

Wednesday, 18th January, 1837,—Marched this morning before 8 o'clock, and reached Demaligolah by noon, where I halted about half an hour, and then

proceeded on to Tippera Munny, where I arrived very much fatigued at about 3½ P. M.; here I found my elephants waiting to convey me to Titalya.

Thursday, 19th January, 1837,—Marched this morning to Raneedanga, where I found my tent pitched just as I had left it in November last.

Friday, 20th January, 1837,—Marched to Titalya.

Sunday, 22d January, 1837,—Marched to Kurreebarree haut in the Sikim Morung.

Monday, 23d January, 1837,—Marched to Muckserbaree, on the banks of the Muhu river.

Tuesday, 24th January, 1837,—Received a visit from the Nepaulese Vakeels named Laksh Bir Sah, Lieutenant Hundull Thappa and Ameer Udyunund Pundit, when it was agreed that we should all proceed to-morrow to Sidhi Khola, as far as the junction of the two streams which forms the Muhu.

Wednesday, 25th January, 1837,—Marched to Muhu Golah, tent pitched among the rocks in the bed of the river; went on the evening to the junction of the two streams that form the Muhu river.

Thursday, 26th January, 1837,—Returned to Muckserbaree where I was engaged in investigating the boundary dispute between Nepaul and Sikim till the 24th of February.

Saturday, 25th February, 1837,—Marched this morning to Nya haut; here the Nepaulese Vakeels and myself were engaged for three days in investigating an alleged inroad made by the people of Nepaul on those of Sikim.

Wednesday, 1st March, 1837,—Marched this morning on my return to Titalya as far as Kurreebarree haut.

Thursday, 2d March, 1837,—Marched to Titalya.

Tuesday, 7th March, 1837,—Marched to Raneedanga.

Wednesday, 8th March, 1837,—Marched to Tippera Munny.

Thursday, 9th March, 1837,—Marched to Goalgaobeeu Munny.

Friday, 10th March, 1837,—To Samdong.

Saturday, 11th March, 1837,—To Tikribong.

Sunday, 12th March, 1837,—To Darjiling. Here nothing particular has occurred worth recording; a few coolies have been continually employed in bringing up supplies for the people to form a depot to last us through the rains, during which time nothing can be had up from the plains.

On the 8th of May, we made an excursion to Ging, which is lower down on the same ridge of mountains and distant from hence in a northerly direction about five miles; it has an elevation of about 5000 feet and enjoys a milder climate than Darjiling. When I visited it about ten years ago there was a considerable space cleared and there are one or two houses at present; the whole is covered with forest and jungle, and none of the surrounding country is to be discerned from thence. Dr. Chapman took the height of the Barometer and Thermometer, and we returned to Darjiling in the evening, having been absent about five hours.

G. W. A. LLOYD, *Lt. Col.*

Darjiling, 1st June, 1837. *On Special Duty N. E. Frontier.*

APPENDIX C.

Diary of the Weather, &c. at Darjiling—January.

1st. Cloudy morning—no ice or hoar frost—day cloudy—night clear.

2d. Daybreak—clear—hoar frost and ice, calm—9 A. M. calm—few cumuli interspersed—noon wind W. overcast—5 P. M. few cumuli interspersed, calm—night clear—fine cold weather.

3d. Fine bright frosty morning—9 A. M. wind N. and clear—noon generally clear, wind E. S. E.—5 P. M. clear, wind W., fine bright night—clear cold weather.

4th. Bright morning, at daybreak wind N., thick ice and hoar frost—9 A. M. bright, calm—noon bright, wind N. E., atmosphere very dry—depression of wet bulb, Thermometer 16°—5 P. M. calm and bright—night bright—snowy mountains have been beautifully distinct every morning this month—fine cold dry weather.

5th. Daybreak—fine bright morning—ice half thick—hoar frost trifling—9 A. M. wind N. bright—noon bright, wind W.—5 P. M. calm and bright—night bright—fine cold day.

6th. Daybreak—fine bright morning—9 A. M. wind N. bright—noon wind W., bright—5 P. M. wind S. W., clear—night clear—fine all day.

7th. Daybreak—bright and calm—hoar frost and thick ice—9 A. M. calm and bright—noon bright, wind W.—5 P. M. clear, wind W.—night clear—fine all day.

8th. Daybreak—fine bright morning, strong wind from South at and before sunrise—hoar frost and thick ice—9 A. M. light wind N., clear—noon wind W. clear—5 P. M. clear, wind W.—A large party of Lepchas arrived here to-day going to the plains—night bright—fine all day.

9th. Daybreak—fine bright morning—wind E. N. E.—hoar frost and ice—9 A. M. clear and calm—Deputation from Sikkim Rajah arrived this morning—noon few cerri, S. and S. E. clear overhead, wind W.—5 P. M. wind W.—a few clouds to S., night clear—fine all day.

10th. At 4 A. M. distant thunder from S.—5 A. M. severe thunder storm—wind changed from S. to E.—heavy fall of snow.—9 A. M. wind N. N. W.—snowing heavily and thundering—noon wind N., continues snowing—ground covered to the depth of a foot—soon after 12 ceased snowing and then commenced feeble sunshine—wind E. N. E.—night bright—very cold day.

11th. Daybreak—hard frost—bright, wind N. E.—9 A. M. bright sunshine—snow melting rapidly—noon warm sunshine, wind W.—snow melting—heavy masses of clouds on the mountains W. and S. W., wind W.—5 P. M. cloudy, calm—night clear—early part of the day fine—evening cloudy.

12th. Clear morning at daybreak—hard frost, wind S. much snow remain —9 A. M. clear, wind S. S. E.—noon heavy clouds, W. and S. W. wind W.—5 P. M. clear, wind N. W.—night clear—fine day.

13th. Daybreak—clear frosty morning—9 A. M. a few clouds interspersed, wind N., much snow remains on the ground—noon thawing fast—clear, wind N.—3 P. M. a shower of sleet,—4 P. M. thunder storm S. W.—5 P. M. cloudy and wind none, night cloudy—early part of day fine—evening cloudy and very cold.

14th. Daybreak—cloudy and haze to N., wind N. N. E., hard frost and hoar frost—9 A. M. fragments cumuli, wind N. N. E.—noon horizon clouded, wind N.—5 P. M. overcast and calm—7 P. M. some snow fell—night cloudy—very cold and cloudy in the evening.

15th. Daybreak—clear frosty morning—heavy fall of snow on mountains N. W.—last night, snow remaining on ground here—9 A. M. wind N. N. E. cumuli S. and S. W.—noon cumuli, N. E. wind—distant thunder to S.—5 P. M.. wind W. S. W., cloudy to E., clear—night clear—frequently cloudy during the day.

16th. Daybreak—fine bright frosty morning, wind S. W.—9 A. M. light N. wind, a few cerri—noon cumuli S. and S. W., partially clouded N. and N. W., calm—some snow remaining—5 P. M. clear S. and E., overcast N. and W., wind E. N. E.—night clear—fine pleasant day.

17th. Daybreak—fine clear frosty morning—9 A. M. a few cerri interspersed, wind S. W.—noon cloudy W. and S. W., calm—5 P. M. overcast, wind W.—early part of the night cloudy—fine pleasant weather and very cold.

18th. Daybreak—fine bright frosty morning—9 A. M. clear, wind N. N. E.—snowy mountains have been very distinct for several days—noon wind W., cloudy W. and S. W., rest clear—snow has nearly all melted—evening, 5 P. M. clear, wind W.—early part of night cloudy—fine clear weather.

19th. Daybreak—calm and cloudy morning, hard frost—9 A. M. overcast, except to N. and N. W., calm—noon wind S. W., overcast—5 P. M. wind W., cloudy S. S. W. and N. W.—night cloudy—cold cloudy day.

20th. Daybreak—a fog, moderate frost—9 A. M. wind W., overcast S. and S. W. rest hazy—noon calm and misty—5 P. M. calm and thick mist—early part of night misty and calm—cold misty day.

21st. Daybreak—misty and calm—no frost last night—9 A. M. wind S. S. E. mist and haze—noon wind W., mist and haze—5 P. M. overcast and hazy, wind N.—early part of night misty—misty greater part of the day.

22d. Daybreak—clear and calm, hard frost—9 A. M. calm, mist and haze—noon misty, wind N.—5 P. M. misty, wind W.—night misty—cold misty day.

23d. Daybreak—calm and foggy—9 A. M. light W. wind, haze and mist—noon wind W., misty—5 P. M. calm and misty—9 P. M. clearing—cold misty day.

24th. Daybreak—clear and frosty, wind N.—9 A. M. few cumuli interspersed, wind N. to N., thick haze—noon wind W. and cloudy—5 P. M. wind W., misty—early part of the night clear—cloudy part of the day.

25th. Daybreak—clear frosty morning, wind N.—9 A. M. wind N., misty—noon wind W., sunshine and occasionally misty—5 P. M. strong W. wind, cumuli to W.—9 P. M. clear—during night strong S. W. wind, with showers—cloudy part of the day.

26th. Daybreak—overcast—strong S. W. wind—9 A. M. strong wind S. W. and snowing—noon strong squalls from W., hail and rain—1 P. M. hail and snow—1½ clearing, sunshine, wind W. and squally—3½ P. M. strong squall from W., with rain—4 P. M. clearing—5 P. M. clear except to N. W., N. and N. E., strong W. wind—9 P. M. strong W. wind, clear—stormy weather.

27th. Daybreak—bright calm frosty morning—snow has fallen to N. and N. W.—9 A. M. wind N., clear, noon wind W , cumuli W. and S. W. rest clear—5 P. M. wind W. and clear overhead, cloudy near horizon—9 P. M. clear and calm—a clear pleasant day.

28th. Daybreak—clear frosty morning, wind N.—9 A.M. wind N., misty, noon overcast and calm—5 P. M. calm, raining—9 P. M. strong S. W. wind, light rain—early part of day clear—afternoon raining.

29th. Daybreak—clear frosty morning, wind N.—9 A. M. clear, wind N. noon calm, to the N. hazy, rest clear—5 P. M. overcast and misty, light wind N.—9 P. M. clear and calm—early part of day clear—afternoon overcast.

30th. Daybreak—clear frosty morning, to N. hazy—9 A. M. calm, generally clear, cloudy N. and W.—noon overcast, wind W.—5 P. M. overcast and misty, wind W.—9 P. M. calm, cloudy and haze to N.—early part of the day clear.

31st. Daybreak—calm, hazy and mist, hard frost—9 A. M. wind N. E., cumuli and hazy—noon calm, and haze—5 P. M. thick mist, light rain, calm—night cloudy—a cloudy day and frequently misty.

Diary of the Weather, &c. for February, 1837.

1st. Daybreak—cumuli and thick haze, no frost—9 A. M. overcast and hazy, calm—noon overcast and hazy, wind S. W., light—5 P. M. thick haze and misty, calm—9 P. M. wind W., fog cold—unpleasant day.

2d. Daybreak—hazy N. and E., rest clear, wind light S. W., hoar frost and ice—9 A. M. cloudy and hazy, wind light S. W.—noon overcast and hazy, wind W.—5 P. M. calm and cloudy—9 P. M. calm, thin fog, overhead clear—cloudy greater part of the day.

3d. Daybreak—thick haze and cloudy W. S., no frost—9 A. M. wind N. E., cumuli S. and W., misty N. and E.—noon light breeze S., hazy, occasional sunshine—5 P. M. wind W., cumuli interspersed, hazy to N.—night clear—cloudy greater part of the day.

4th. Daybreak—clear frosty morning and calm—9 A. M. light W. wind, a few clouds overhead, hazy N. and E.—noon light variable wind, cloudy S. and W. weather much warmer, 5 P. M. light S. wind, a few cumuli and cerri interspersed, hazy N. and E.—9 P. M. clear, wind Westerly—a very pleasant day.

5th. Daybreak—clear overhead, hazy near horizon, light N. E. wind, hoar frost and thin ice—9 A. M. calm, cumuli interspersed, hazy N.—noon hazy, cumuli S. and S. W., wind S. W.—5 P. M. wind W., thick haze and heavy clouds to S., overhead clear—9 P. M. wind N., clear—fine pleasant day.

6th. Daybreak—bright frosty morning, strong Westerly wind at and several hours before sunrise—9 A. M. generally clear, wind N., horizon clouded, wind W.—5 P. M. overcast, light west wind—9 P. M. clear—fine pleasant weather.

7th. Daybreak—fine frosty morning, wind N. E. horizon hazy to N.—9 A. M. calm and generally clear—noon wind W., heavy clouds S. and S. W., hazy to N.—5 P. M. wind W., cumuli S. and S. W.—9 P. M. cloudy, wind W.—a fine pleasant day.

8th. Daybreak—fine frosty morning, wind N.—9 A. M. wind N., cloudy and hazy to N.—noon cloudy, W. and S. W. wind—5 P. M. wind W., horizon hazy, cerri interspersed—9 P. M. cloudy—a fine day.

9th. Daybreak—strong wind from S., cloudy S. and E. thick haze N. and W., no frost—9 A. M. strong S. wind and cloudy near horizon, above clear—noon brisk wind S. W., overcast—1½ P. M. thunder to the S., rain here—5 P. M. continues raining though not heavily, wind W.—(a hail storm on the road to Tikribong at 1½ P. M.) night clear, wind W.—early part of the day warm and pleasant.

10th. Daybreak—clear frosty morning, strong West wind, snow has fallen on the mountains W. and N. W.—9 A. M. horizon hazy, cumuli S. E., wind variable—noon wind W., overcast and very cold—1 P. M. light shower—1½ P. M. thunder storm to N. W., sleet and rain here—5 P. M. wind E., heavy clouds N. and N. W., distant thunder—9 P. M. strong wind N. W., partially overcast, occasional showers—frequent squalls during the night, with rain—a very cold unpleasant day.

11th. Daybreak—squalls and showers from S. W., much snow has fallen to the W. and N. W.—9 A. M. squalls from S. W., generally overcast—noon strong S. W. wind, occasional showers, overcast and misty—some snow at 1 P. M.—5 P. M. a thunder storm to the S. W., light rain here, overcast and misty, wind S. and strong—9 P. M. wind S. W., overcast towards morning, a thunder storm to S. W., wind squally from that quarter and occasional showers —very cold unpleasant weather.

12th. Daybreak—overcast and strong S. wind—9 A. M. overcast, wind S., light rain—noon thick mist and rain, wind S. S. W.—5 P. M. raining and misty, wind W.—night overcast, and towards morning a thunder storm and fall of snow about 2 inches—cold unpleasant weather.

13th. Daybreak—overcast, wind S. W., about two inches of snow on the ground, a heavy fall to N. and N. W.—9 A. M. wind N., clear S. W. and S., rest misty—snow melting rapidly,—noon wind S. W., overcast, snow nearly gone—5 P. M. generally clear, wind S., all the snow thawed—night clear, wind brisk W.—clear the greater part of the day but very cold.

14th. Daybreak—clear and calm, severe frost—9 A. M. wind N. E., few cumuli interspersed—noon overcast, a few flakes of snow falling, cold severe, Thermometer 38°, wind S.—3 P. M. hail shower—5 P. M. cumuli S. and S. W., strong wind S. S. W. with snow—9 P. M. clear, wind S. W., hard frost—very cold weather.

15th. Bright, calm, frosty morning, Thermometer at 25°5, and in the house after sunrise, 30°—9 A. M. wind N. E. clear—noon clear, wind W. N. W., —5 P. M. overcast to W., wind W.—9 P. M. generally overcast, cumuli and cumuli strat., wind S. W., freezing hail—fine clear day but very cold.

16th. Daybreak—snow falling, calm—9 A. M. snow falling lightly, and is now about an inch and half deep, nearly a calm—noon wind S., thick mist and a thaw—5 P. M. thick mist, wind S.,—9 P. M. mist, wind S.—a cold foggy day.

17th. Daybreak—clear, calm, frosty morning—9 A. M. to N. clear, rest overcast, calm—noon wind N., heavy clouds S. and S. W., clear to N.—5 P. M. thick mist, wind W.—9 P. M. wind W. and misty—clear the greater part of the day.

18th. Daybreak—calm and misty, wind W., no frost—9 A. M. wind S., misty—noon wind W. thin mist—5 P. M. wind N. N. E. cumuli strat. and hazy—9 P. M. clear moonlight, wind N. N. E.—cold misty day.

19th. Daybreak—clear frosty morning, wind S.—9 A. M. calm and generally clear—noon clear, wind W.—5 P M. clear, wind W.—9 P. M. clear, wind W.—fine clear weather.

20th. Daybreak—fine clear morning, slight hoar frost, no ice, calm—9 A. M. thin mist, wind N. E.—noon wind W., clear—5 P. M. clear, wind N. —9 P. M. calm and bright moonlight—fine clear day.

21st. Daybreak—clear, wind N. N. E., slight hoar frost—9 A. M. clear, wind N. N. E.—noon wind S. W., cloudy N. and N E.—5 P. M. few cumuli S. and S. W., hazy to N., wind W.—9. P. M. overcast, wind W.—a fine warm day.

22d. At daybreak clear and calm, no frost—9 A. M. calm, thick haze and misty—noon a few cumuli W. and S. W., wind W.—5 P. M. wind W., a few cerri interspersed—night bright—fine clear weather.

23d. Daybreak—fine bright frosty morning, wind N. N. E.—9 A. M. bright, wind N. N. E.—noon clear, wind W.—5 P. M. light haze, wind W.—9 P. M. calm and hazy—a warm and pleasant day.

24th. Daybreak—overcast and hazy, wind S.—9 A. M. calm, overcast and hazy—noon wind variable, overcast and hazy—5 P. M. wind S. S. W.,

overcast and hazy—9 P. M. horizon hazy, above clear, wind S.—cloudy all day.

25th. Daybreak—generally clear, wind S. W.—9 A. M. thin mist, wind S. W.—noon wind S. W. partially clouded—5 P. M. generally clear, wind S. W. —9 P. M. clear, wind S. W.—a fine day.

26th. Daybreak—cloudy, strong W. wind—9 A. M. partially overcast, wind N.—noon overcast and hazy, wind S. W.—a few drops of rain at 4 P. M.—5 P. M. heavy cumuli N. and W., strong S. W. wind—9 P. M. clear and calm —fine weather but occasionally cloudy.

27th. Daybreak—clear, calm, light frost—9 A. M. wind N., horizon cloudy —noon generally overcast, wind variable—5 P. M. cumuli interspersed, wind W.—9 P. M. clear, wind W.—fine weather.

28th. Daybreak—cloudy, strati, wind N.—9 A. M. wind N., cerri, hazy to N.—noon wind W., overcast—5 A. M. cumuli strat. to S. W. wind S. W.—9 P. M. wind S. W., clear—fine weather.

Diary of the Weather, &c. for March, 1837.

1st. Daybreak—clear, wind S., no frost—10 A. M. calm and hazy—noon wind S. W. hazy—4 P. M. strong wind W. S. W., cerri and haze—cumuli to W. —9 P. M clear and calm—very fine weather.

2d. Daybreak—cerri and light haze, wind S. W.—9 A. M. wind S. W.—cerri interspersed—noon clear, strong W. wind—4 P. M. clear, strong W. wind—9 P. M. clear and calm—fine clear weather—Thermometer at Titalya 83° here 57°.

3d. Daybreak—few cerri interspersed, light wind N. E.—10 A. M. wind N. E., clear—noon clear, wind S. W.—4 P. M. generally clear, wind S. S. W.—9 P. M. clear and calm—fine weather.

4th. Daybreak—clear, wind N. E.—10 A. M. clear, wind S. W.—noon generally clear, wind S. W.—4 P. M. wind variable, few cumuli interspersed —9 P. M. clear and calm—fine warm day.

A large body of Lepchas arrived here to-day from the plains bringing up goods for the Sikkim Raja, well inclined to be troublesome.

5th. Daybreak—clear and calm, hoar frost—10 A. M. clear, wind S. W.—noon clear, wind S. W.—4 P. M. wind S. S. W. generally clear—9 P. M. clear, wind S. W.—a fine clear day and warm.

6th. Daybreak—clear and calm, hoar frost—10 A. M. calm and clear—noon few clouds interspersed, wind S. W. strong—4 P. M. generally clear, strong S. W. wind—9 P. M. clear, wind S. W.—fine clear day.

7th. Daybreak—clear and calm, hoar frost—10 A. M. calm light haze—noon clear, wind S. W.—4 P. M. wind S. strong, clear—9 P. M. clear, wind S. —fine clear day.

8th. Daybreak—clear and calm, no frost—10 A. M. clear, wind W.—noon generally clear, wind W.—4 P. M. clear, wind W.—9 P. M. clear, wind W.—fine clear day.

9th. Daybreak—light haze and calm, no frost—10 A. M. calm and clear—noon clear and calm—4 P. M. cerri interspersed, hazy, strong W. wind—9 P. M. hazy, wind S. W.—fine warm day.

10th. Daybreak—clear, wind S.—10 A. M. horizon cloudy, above clear—noon generally overcast, wind S. W.—4 P. M. cerri and cumuli interspersed, wind W. —P. M clear and calm—fine pleasant day.

11th. Daybreak—clear, wind S. W.—10 A. M. clear, light N. wind—noon clear, wind S. S. E.—4 P. M. clear, strong S. S. W. wind—9 P. M. clear and calm—clear all day.

12th. Daybreak—clear and calm, slight hoar frost—1 A. M. clear, wind S. W.—noon clear, wind S.—4 P. M. clear, wind S.—9 P. M. clear and calm—clear all day.

13th. Clear and calm at daybreak, very slight frost—10 A. M. horizon hazy, above clear, wind S. W.—noon horizon hazy, above clear, wind S. W.—9 P. M. hazy, wind S.—warm and pleasant weather.

14th. Daybreak—generally overcast and hazy near horizon, calm—10 A. M. wind S. W., clouds interspersed and horizon hazy—noon cumuli overhead, heavy clouds near horizon, a few drops of rain have fallen—1, 2 and 3 P. M. squalls from S. W. and S., with hail, rain and a few flakes of snow—4 P. M. clear, wind S. and more moderate—9 P. M. hazy, wind N. E.—distant thunder at intervals since sunset—a cloudy and windy day.

15th. Daybreak—clear and calm, severe hoar frost, Thermometer during the night 37°—10 A. M. clear, wind N. E.—noon partially overcast and hazy, wind W.—4 P. M. clouds interspersed and hazy, wind W.—9 P. M. clear, wind W.—fine day.

16th. Daybreak—thick haze to N., clear overhead, wind N. E.—10 A. M. horizon hazy, above clear, wind N.—noon overcast and hazy, wind W.—4 P. M. overcast and thick haze, wind N. E. light—10 P. M. scattered clouds to S. and W., thick haze to N., strong wind S. W.—a fine day.

17th. Daybreak—clear, wind N. E.—10 A. M. clear overhead, scattered clouds to S. and S. W., to N. thick haze, strong wind S. W.—noon generally overcast and hazy, wind W.—4 P. M. wind W. overcast and thick haze—9 P. M. overcast and hazy, wind W.—a cloudy day, otherwise pleasant.

18th. Daybreak—thick haze to N. rest clear, wind N. E.—10 A. M. cumuli to S., hazy to N., wind N. E.—noon generally cloudy and thick haze, wind light S.—4 P. M. thick haze and generally overcast, wind W.—a few drops of rain about ½ past 2, distant thunder and occasional showers during the afternoon—9 P. M. overcast, wind W—thick hazy weather.

19th. Daybreak—clear except to N., slight hoar frost, wind E.—10 A. M. cumuli S. and W. thick haze to N., wind N.—noon heavy clouds S. and W., thick haze N., wind W.—2 P. M. thunder storm to S., a few drops of rain here—showers at intervals during afternoon—4 P. M. raining, wind S. W.—9 P. M. strong wind W., clouds dispersed—morning pleasant, afternoon showery.

20th. Daybreak—hazy to N., rest clear, calm—10 A. M. wind N. E., cumuli to S. hazy N.—noon wind W., heavy clouds S. and W. hazy to N.—4 P. M. wind W., hazy to N., cumuli to S.—9 P. M. clear here, a thunder storm to N., wind W.—a fine day.

21st. Daybreak—horizon hazy, above clear, wind S.—10 A. M. wind W., cumuli and hazy—noon strong W. wind, horizon hazy, above clear—1 and 2 P. M. strong gale from W.—4 P. M. wind W. S. W. and moderate, overcast and hazy—5½ P. M. thunder storm to N. and here at 6 P. M. with hail from N. E.—7 P. M. thunder storm from N. and rain, force of the storm gone off to the E. down the valley of the Teesta—10 P. M. wind W., few cerri—day fine, evening stormy.

22d. Daybreak—clear S. and W., cloudy N. and E., wind N. E. snow has fallen to N. and N. W.—9 A. M. clear, wind N. E.—noon clear, wind W.—4 P. M. partially overcast calm—fine pleasant day.

23d. Daybreak—calm and clear—10 A. M. generally clear, wind W.—noon thick haze and generally overcast—4 P. M. overcast and hazy, wind S. S. W.—9 P. M. calm and overcast—pleasant weather.

24th. Daybreak—calm and overcast—10 A. M. overcast and hazy, wind W.—noon wind N., overcast—4 P. M. calm and overcast—cloudy day, otherwise pleasant weather.

25th. Daybreak—calm and overcast—10 A. M. calm and misty—noon haze and mist, wind W.—4 P. M. W. wind, overcast and hazy—9 P. M. calm and overcast—cloudy all day.

26th. Daybreak—overcast and calm—10 A. M. thick haze and occasional mist, wind W.—noon wind W., overcast—4 P. M. calm and overcast—9 P. M. overcast—cloudy all day.

27th. Daybreak—generally overcast, wind W,—10 A. M. wind W.—mist and haze, occasional sunshine—noon strong W. wind, occasional sunshine—4 P. M. heavy clouds S. and W., thick mist N. and E., strong wind W., a few drops of rain have fallen—5 P. M. distant storm to N. W.—night bright, wind W.—warm and pleasant weather.

28th. Daybreak—fine, bright, calm morning—10 A. M. bright, wind N.—noon bright, wind W. and strong—4 P. M. bright overhead, horizon hazy—9 P. M. clear and calm—a very fine day.

29th. Daybreak—horizon hazy, rest clear, slight hoar frost—10 A. M. horizon hazy, above bright, wind S. W.—noon wind S. S. W., horizon hazy, above clear—4 P. M. horizon hazy, above clear, strong wind S. W.—9 P. M. clear and calm—a very fine day.

30th. Daybreak—thick haze N. and E., clear overhead, wind N. E., slight hoar frost—10 A. M. calm, horizon hazy, above clear—noon horizon hazy, overhead clear, wind W.—4 P. M. thick haze N. and W. above clear, wind W.—9 P. M. hazy to N. above clear, wind S.—very fine weather.

31st. Daybreak—horizon hazy, above clear, calm—10 A. M. horizon hazy, above clear, wind variable—noon wind W. thick haze—4 P. M. wind W., thick haze—9 P. M. wind W., horizon hazy, overhead clear—a fine and pleasant day.

Diary of the Weather, &c. for April, 1837.

1st. Daybreak—thick haze above the horizon, overhead clear, calm, slight hoar frost—10 A. M. thick haze and calm—noon wind west, thick haze—4 P. M. thick haze, cumuli N. W., wind W.—9 P. M. hazy, light S. W. wind.

2d. Daybreak—thick haze, distant mountains entirely obscured, wind N. E. —10 A. M. wind N., cumuli near horizon and thick haze, above clear.—11 A. M. heavy clouds collecting to S.—noon a thunder storm from S. with rain and hail, storm continued all the afternoon, wind variable, heavy fall of hail—4 P. M. Thermometer down to 39° outside and exposed—5 P. M. storm moderated—6, 7 and 8 raining, wind variable, distant thunder—9 P. M. misty—much hail remaining on the ground.

3d. Morning overcast—light wind N. E., much hail on the ground—10 A. M. overcast, wind S.—noon raining, calm—4 P. M. cumuli and misty, sunshine occasionally during the day—9 P. M. generally clear, wind W. rain between 4 and 7—a cold unpleasant day.

4th. Daybreak—calm and generally clear, mountains to N. obscured, snow has fallen to the N. and N. W.—10 A. M. cumuli and misty to N. and N. E., occasional sunshine, calm—noon wind W. overcast and misty N. and E.—4 P. M. wind S. W., overcast and gloomy—9 P. M. wind W.—thin mist near the horizon, above clear.

5th. Daybreak—generally clear and calm, clouds on mountains N. and E.—10 A. M. cloudy near horizon, above clear, wind W.—noon clouds scattered, frequent sunshine, wind W.—3 P. M. distant thunder to the S., light rain here—4 P. M. heavy clouds to S., misty N. and E., wind W., light rain and distant thunder—5 and 6 P. M. raining—9 P. M. clear, wind W., a thunder storm gone off from N. and E. down the vallies—morning and noon pleasant weather, afternoon cold and raining.

6th. Daybreak—clouds interspersed, wind W.—10 A. M. calm, clouds interspersed, sunshine—noon generally clear, wind W.—4 P. M. wind W., clouds interspersed, sunshine, warm, pleasant weather—9 P. M. wind strong W., clear.

7th. Daybreak—clear overhead, horizon hazy, calm—10 A. M. wind N., horizon hazy, scattered clouds—noon generally overcast and hazy, occasional

sunshine—4 P. M. cloudy and hazy, wind W., pleasant weather—9 P. M. clear, wind W. strong.

8th. Daybreak—cloudy horizon N. and E., overhead clear, wind S., light —10 A. M. calm, clouds interspersed and hazy to N.—noon wind W., clouds interspersed and horizon hazy—4 P. M. heavy masses of clouds to S., horizon hazy, above clear, wind strong S.—warm and pleasant day—6 to 8 P. M. blowing a gale from W.—9 P. M. wind W. and more moderate but still very strong, clear.

9th. Daybreak—horizon generally hazy, overhead clear, calm—10 A. M. fog, calm—noon thick haze, strong W. wind—4 P. M. overcast, wind W. storm coming on from N. W.—4½ P. M thunder storm with some hail and rain, strong wind—9 P. M. overcast, wind W—warm and pleasant weather.

10th. Daybreak—raining, calm—10 A. M. overcast, calm—noon thunder storm to S. E., here light rain and occasional fog, wind W.—4 P. M wind W., clouds interspersed, sunshine—9 P. M. overcast, light rain—morning overcast and wet, afternoon fine.

11th. Daybreak—calm, horizon hazy, clear above—10 A. M. calm, clouds to S.—noon wind W., cloudy—4 P. M. few clouds dispersed, wind W.—9 P. M. calm and clear—a warm pleasant day.

12th. Daybreak—calm, horizon N. and E. hazy, above clear—10 A. M. few clouds to S., horizon hazy, above clear, wind N. E.—noon calm, partially overcast—4 P. M. wind W., cloudy—9 P. M. calm and clear—a warm pleasant day.

13th. Daybreak—calm and hazy—10 A. M. calm, a few clouds and hazy—noon hazy, clouds interspersed, light variable wind—4 P. M. thick haze and clouds interspersed, wind W. light—9 P. M. calm, clear overhead—a warm pleasant day.

14th. Daybreak—horizon hazy, calm—10 A. M. calm, thick haze and clouds interspersed—noon calm, haze and clouds interspersed, overhead clear—4 P. M. thick haze and clouds interspersed, wind light W.—9 P. M. wind W, horizon hazy, above clear—a warm day and insects very annoying.

15th. Daybreak—thick haze N. and E. rest clear, wind light N.—10 A. M. horizon hazy, above clear, wind W.—noon wind W., few cumuli interspersed and hazy—4 P. M. thick haze, strong W. S. W. wind—9 P. M. calm, horizon hazy, above clear—a very warm day.

16th. Daybreak—thick haze near horizon, above clear, calm—10 A. M. calm and hazy—noon hazy, wind W.—4 P. M. thick haze, wind W.—9 P. M. hazy, wind N. light—early part of the day very warm.

17th. Daybreak—thick haze and calm—10 A. M. thick haze and calm—noon thick haze and calm—4 P. M. hazy and calm—9 P. M. partially overcast, thick haze, wind W.—warm and pleasant day.

18th. Daybreak—calm, thick haze—10 A. M. calm, thick haze—noon calm, thick haze—4 P. M. few cumuli interspersed, thick haze, wind W. light—

9 P. M. strong west wind, hazy, distant thunder N.—very warm in the early part of the day.

19th. Daybreak—calm, overcast and hazy—10 A. M. calm, thick haze, cumuli S.—noon calm, generally overcast and hazy—4 P. M. overcast and hazy, light rain, wind S.—9 P. M. calm and overcast—a pleasant day.

20th. Daybreak—calm and overcast—10 P. M. overcast, wind S. E.—noon calm, fog occasionally during morning, thick fog in the distance—4 P. M. overcast, wind W., light showers during the evening— 7 P. M. a thunder storm gone down the vallies N. E.—9 P. M. overcast, wind W.—cloudy all day but very pleasant.

21st. Daybreak—generally clear, horizon clouded N. and E., calm—10 A. M. calm, partially overcast—noon cumuli interspersed, strong wind W.—4 P. M. wind W. strong, a thunder storm to S. since 3 P. M. which is now going off to the E., overhead clear—6 P. M. storm entirely gone and generally clear—9 P. M. bright moonlight, hazy N., wind W.—pleasant day.

22d. Daybreak—calm, clear to N. light haze, snowy mountains visible this morning—10 A. M clear, nearly calm—noon hazy, wind W, cumuli S.—4 P. M wind W., cumuli and haze—9 P. M. wind W., horizon hazy, overhead clear—warm and pleasant day.

23d. Daybreak—calm and hazy—10 A. M. horizon hazy, above clear, wind W —noon thick haze, wind W.—4 P. M. thick haze, wind S. W.—weather very pleasant but rather warm early in the morning.

24th. Daybreak—thick haze, wind S. E.—10 A. M. thick haze, wind light S.—noon very thick haze, nearer mountains hidden by it, wind S. W.—4 P. M. thick haze, wind W.—9 P. M. calm, hazy—warm pleasant weather.

25th. Daybreak—haze very thick, calm—10 A. M. calm, thick haze—noon thick haze, light wind W.—4 P. M. wind W., thick haze—9 P. M. calm, thick haze—pleasant weather.

26th. Daybreak—thick haze, calm—10 A. M. calm, thick haze—noon calm, thick haze—1 P. M. wind light W., thick haze—9 P. M. wind W., hazy—a warm pleasant day.

27th. Daybreak—wind light S. E., thick haze—10 A. M. calm, thick haze—noon thick haze, light wind W.—4 P. M. brisk wind W., thick haze—9 P. M. thick haze, wind S. S. W.—warm pleasant weather.

28th. Daybreak—thick haze and calm—10 A. M. partially overcast, thick haze, wind N.—noon partially overcast, thick haze, wind variable—4 P. M. thick haze, cumuli interspersed, wind W.—9 P. M. wind S. W., horizon hazy distant thunder N.—weather warm and pleasant.

29th. Daybreak—hazy, light S. E. wind—10 A. M. wind N. E, partially overcast and hazy—noon hazy, cumuli interspersed, wind variable from S.—3 P. M. storm to E., a few drops of rain here—4 P. M. generally overcast, wind S. S. W., rain falling lightly—5 and 6 P. M. storms to N. and S.—½ past 6 some rain and hail here—8, 9,10 thunder storm to N.—storm here at 9, with hail and rain.

30th. Daybreak—fine morning, generally clear and calm—10 A. M. overcast, a storm to the S., a few drops of rain here, wind S.—noon generally overcast, wind S. W.—4 P. M. generally overcast, heavy clouds S. W., wind N.—9 P. M. clear, wind W.—fine pleasant weather.

Diary of the Weather, &c. for May, 1837.

1st. Daybreak—generally clear and calm—10 A. M. cloudy, light wind N. E.—noon wind W., occasional showers—4 P. M. wind S. W. strong, a thunder storm has just passed over, now raining—7 to 9 P. M. thunder storm with strong wind from N. W. and rain—pleasant day, with showers occasionally.

2d. Daybreak—a fine clear morning, higher points of snowy range visible—10 A. M. wind W., cloudy S. and W.—noon wind W., cumuli interspersed—4 P. M. brisk W. wind, a few clouds S. and W.—9 P. M. calm, clouds N. E., rest clear, lightning N. E. and S. W.,—light showers during the night—a fine pleasant day.

3d. Daybreak—overcast and light rain—cleared at 7 A. M., snow has fallen during the night in considerable quantity on the mountains N. W.—10 A. M. cumuli and cerri, wind light S.—noon heavy clouds N. and W., storm gathering—1 P. M. some rain and hail here, storm gone off to the E.—3 P. M. storm from S. with rain—4 P. M. heavy thunder storm to N., wind S. W. light—4 to 6 P. M. thunder and occasional showers—6 to 7 heavy rain, with thunder and lightning—9 P. M. clear overhead, strong wind S. W., lightning S. W., snow has fallen heavily on the road to Tikribong.

4th. Daybreak—calm, thick fog and light rain—6 A. M. severe thunder storms with strong squalls from W. N. W., snow has fallen to N. W. and W.—8 A. M. cleared—10 A. M. sunshine and generally clear, wind N E —noon heavy clouds collecting W. and N. W.—1 P. M. thunder storm from N. W.—4 P. M. wind W., generally overcast—5 P. M. storm from N. W., cleared at 6 P. M.—9 P. M. bright starlight, strong W. wind, distant lightning S. W.

5th. Daybreak—clear and calm—10 A. M. wind N. E., clouds collecting—noon overcast, light rain at 2 P. M.—4 P. M. light rain, wind W., heavy clouds N. and N. W.—9 P. M. W. and N. W., rest clear, wind W.—day cloudy but pleasant.

6th. Daybreak—clear, light wind N. E.—10 A. M. misty and overcast—noon calm, overcast,—4 P. M. generally overcast, wind S. W., light, heavy clouds W. and N. W.—9 P. M. overcast, wind W.—cloudy day, with occasional sunshine—pleasant weather.

7th. Daybreak—clear and calm—10 A. M. generally overcast, calm, fog to E. and N. E.—noon sunshine, but generally overcast, light wind S. W.—4 P. M. partially clouded, wind W.—9 P. M. generally clear, wind S. W.—very agreeable weather.

8th. Daybreak—generally overcast, calm—10 A. M. calm, overcast and foggy, went this morning to Ging, left Dorjéling at 11½ A. M., returned at 4½ P. M. —the distance to Ging about 4 miles to the N. N. E. of Dorjéling and considerably lower—Barometer there at 1½ P. M. 24° 876, Thermometer 69°, boiling point of water 209° 5—vegetation much forwarder than at Dorjéling, the road, excepting about the first mile, in very good condition—6 P. M. storm gathering S. W.—7 P. M. thunder storm and rain—8 and 9 P. M. storm continuing.

9th. Daybreak—partially overcast, light W. wind—10 A. M. overcast, wind W.—noon overcast, wind S. W.—4 P. M. strong wind S. S. W., heavy cumuli near horizon, above clear—½ past 4 light shower, evening clear—9 P. M. bright moonlight, strong W. wind—during the night a thunder storm from S. W. which passed off to the N.—a pleasant day and frequent sunshine.

10th. Fine bright morning, light wind N. W., snowy mountains visible—10 A. M. generally clear, light wind W.—noon cloudy S. and W., wind W.—2 P. M. thunder storm to W., light rain here—3 P. M. storm gone off to S. E.—4 P. M. wind S. W., generally overcast, heavy clouds S. and W.—evening fine—9 P. M. clear, wind W.—morning clear, cloudy afternoon, evening and night clear.

11th. Daybreak—bright, calm, snowy range visible—10 A. M. clear, wind N.—noon heavy cumuli near horizon, above clear, wind brisk W. S. W.—1½ P. M. thunder storm to the east—2 P. M. thunder storm coming on from N. W.—2½ P. M. storm passed off to S. E., light rain here—3 P. M. another storm from N. W. passing away to S. E. some rain and hail here—4 P. M. heavy clouds to N. W., wind W.—6 P. M. storm passed over Dorjéling, light rain —9 P. M. generally overcast, thunder storm to N. W., strong wind from N. W. and light rain—early part of day fine, frequent storms after noon.

12th. Daybreak—clear, wind N.—10 A. M. horizon cloudy, above clear, calm—noon storm collecting to S. W., wind W.—from 1 P. M. continual thunder storm from S. W., West and N. W., all passed off to S. E., some rain and hail here—4 P. M. thundering to W. and generally overcast, strong W. wind—5 and 6 P. M., a storm here, with hail and rain—9 P. M. bright moonlight, wind S. W. —morning clear and pleasant, evening stormy and wet.

13th. Daybreak—clear, wind N.—10 A. M. cumuli collecting near horizon, above clear, wind light W.—noon wind W. and generally overcast, thunder storm S. and W.—4 P. M. light rain, clear to N., wind W.—9 P. M. clearing to S., wind W., a storm gone off to N. E.—morning fine, afternoon showery.

14th. Daybreak—horizon cloudy, above clear, calm—10 A. M. calm, horizon cloudy, overhead clear—noon wind W., horizon cloudy, thunder storm gone off to S. E.—4 P. M. overcast and light rain, storm to N. W.—9 P. M. clouds dispersed, calm—morning and evening till 3 fine, although occasionally clouded.

15th. Daybreak—generally overcast, and occasionally misty, calm—10 A. M. calm, generally overcast, misty in the distance—noon wind W. occasionally overcast—4 P. M. wind S W., horizon clouded, above clear—9 P. M. overcast,

distant thunder, wind N. W., day cloudy, but weather very pleasant—between 9 and 10 at night, a storm passed off to the N. E.—heavy rain and hail here for a short time.

16th. Daybreak—calm, thin mist, which cleared away soon after sunrise—10 A. M. calm, horizon cloudy, rest clear, fog in the vallies—noon cumuli interspersed, wind W.—4 P. M. brisk W. wind, horizon cloudy, above clear—9 P. M. partially overcast—wind brisk S. W.—9½ distant storm N. E.—a pleasant day, although frequently overcast, no rain.

17th. Daybreak—horizon N. and N. E. cloudy, rest clear, wind brisk S. W. —10 A. M. horizon cloudy, above clear, wind light S. W.—noon horizon clouded to S. and S. W., wind N. W.—1½ P. M. thunder storm N. E.—4 P. M. horizon cloudy, cumuli S. and S. W., wind brisk W.—9 P. M. strong wind W., bright moonlight—a very fine day.

18th. Daybreak—calm, horizon cloudy N. and E., rest clear—10 A. M. cumuli interspersed, calm—noon wind W., horizon cloudy—1 P. M. distant storm S. W.—4 P. M. horizon clouded, storm to W., wind W.—during the evening distant thunder N. and N. W.—9 P. M. cloudy N. and E. rest clear—a very pleasant day.

19th. Daybreak—clear, light wind S. W.—10 A. M. horizon clouded, rest clear, calm—noon calm and cloudy, thunder storm S. W.—4 P. M. wind S., overcast—storms S. and N. W., light rain here—4½ storms gone off as usual to the Teesta, raining here—rain during the evening—9 P. M. lightning to S. W., wind N. W.—light rain falling, storm to N. during night—early part of the day clear and pleasant, afternoon raining.

20th. Daybreak—generally overcast, light rain falling usual S. and S. S. W. —7 A. M. clearing—10 A. M. calm and foggy noon calm and fog—4 P. M. overcast, light showers at intervals since noon—5 P. M. a thunder storm gone off to N.—9 P. M. calm and cloudy—frequent showers during the day—weather pleasant.

21st. Daybreak—calm, light fog, clear at intervals—10 A. M. calm, fog, occasionally clear—noon overcast, distant thunder, wind W.—4 P. M. storm from N. gone off to E., raining here, wind variable—raining during the evening, and distant thunder—9 P. M. generally clear, wind W.—foggy the greater part of the day, raining in the afternoon.

22d. Daybreak—calm, thin mist—10 A. M. horizon cloudy, fog in the vallies—noon generally clear, wind S. W.—4 P. M. horizon cloudy, rest clear, wind W.—9 P. M. wind W., light mist—a fine day and clear the greater part.

23d. Daybreak—calm and clear—10 A. M. calm, generally clear—noon wind S. W., cumuli interspersed—4 P. M. wind S. W., horizon cloudy, rest clear—9 P. M. wind W., raining—a very fine and pleasant day.

24th. Daybreak—horizon cloudy, wind S. W.—10 A. M. calm, horizon cloudy, above clear—noon partially overcast, fog in the distance, sunshine

here, wind S. E.—4 P. M. clear, wind W. S. W.—9 P. M. wind W., tremendous storms and heavy rain at Titalya on the 21st—heavy rain daily south of the Sinchul mountain.

25th. Daybreak—calm, horizon misty, cumuli interspersed overhead—10 A. M. calm and overcast, fog in the vallies—noon wind W. S. W., cumuli interspersed, fog in the vallies—4 P. M. wind S. W., cumuli interspersed—in the evening rain from 5 to 7—10 P. M. wind E., thin fog and light rain—the day fine, afternoon wet.

26th. Daybreak—calm, horizon cloudy, above clear—10 A. M. calm and fog in the vallies, cumuli interspersed overhead—noon calm, rain and fog, frequent fog and showers during the afternoon—4 P. M. calm, light rain, fog in the vallies—9 P. M. calm and thin fog—a foggy day and frequent showers.

27th. Daybreak—calm, cumuli interspersed overhead, occasionally fog—10 A. M. cumuli interspersed, fog in the vallies—noon sunshine and fog alternately—4 P. M. wind S. W., overcast, fog in the vallies—9 P. M. overcast, cum. strat., strong west wind—fog, sunshine and light showers during the day.

28th. Daybreak—calm, cerri and cumuli strat. interspersed, thunder to the S.—10 A. M. partially overcast, calm—noon sunshine and fog alternately, wind S. W.—4 P. M. showery, wind W. S. W.—9 P. M. overcast and wind W. —frequent fog during the day—heavy rain south of the Sinchul.

29th. Daybreak—overcast and calm—10 A. M. calm and fog—noon calm and fog—4 P. M. wind S. W., fog—9 P. M. fog and light rain, wind S. W.—fog all day.

30th. Daybreak—calm and fog—10 A. M. calm and fog—noon calm, overcast, heavy showers between 1 and 3 P. M.—4 P. M. wind W., overcast and foggy—9 P. M. wind W., fog and light rain—fog all day and frequent showers.

31st. Daybreak—calm and overcast—10 A. M. calm, generally overcast, feeble sunshine occasionally, fog in the vallies—noon calm, overcast and fog in the vallies—4 P. M. overcast and foggy, calm—9 P. M. calm, fog and light rain—foggy all day.

Early this morning a Sepoy, an aged man, died suddenly, he had for above a month been labouring under an affection of the chest.

Diary of the Weather, &c. for June, 1837.

1st. Daybreak—overcast, wind S. S. W.—10 A. M. generally clear, wind W.—noon fog, wind W.—4 P. M. cumuli, wind W.—frequent sunshine during the day, rain to the S.—10 P. M. fog, distant lightning N. and E., wind W.

2d. Generally overcast at daybreak, wind W.—10 A. M. sunshine, cerri interspersed, wind light W.—noon sunshine, cumuli interspersed, wind W.—4 P. M. horizon cloudy, cumuli interspersed above, wind light W. S. W.—9 P. M. bright starlight, brisk W. wind.

3d. Daybreak—clear and calm—10 A. M. cumuli interspersed, wind light N. E.—noon cloudy with occasional sunshine, calm—4 P. M. cloudy, wind W.—9 P. M. bright starlight, wind W.

4th. Daybreak—horizon hazy, cerri interspersed above, calm—10 A. M. clear, wind W. S. W. light—noon cumuli, wind light S. S. E.—4 P. M. generally clear, wind S. W.—9 P. M. bright starlight, wind light W.

5th. Daybreak—clear and calm—10 A. M. clear, wind light S.—noon generally clear—2 P. M. thunder to N., a few drops of rain here—4 P. M. cumuli interspersed, calm—6 P. M. thunder to S. and S. W., light rain here—9 P. M. cloudy to N., wind W.

6th. Daybreak—horizon cloudy, calm—10 A. M. partially overcast, wind light W.—noon overcast and occasionally foggy, wind W. S. W.—distant thunder and rain during the afternoon—4 P. M. overcast, raining, wind S. W., distant thunder—raining all the evening—9 P. M. raining, lightning S. and E., wind S. W.

7th. Clear and calm at daybreak—10 A. M. partially overcast, wind light S. W.—noon cumuli interspersed, wind S. W.—4 P. M. generally clear, wind W. S. W.—9 P. M. clear, wind S. W.

8th. Daybreak—overcast, distant thunder, light wind W.—at 7 A. M. commenced raining—9 A. M. thunder storm and heavy rain from S. E.—10 A. M. clearing, calm—noon generally clear, wind W.—4 P. M. cloudy to S., cumuli overhead, wind S.—9 P. M. horizon cloudy, calm.

9th. Daybreak—cloudy N. and E., light E. wind—10 A. M. generally overcast, wind S. W.—noon cloudy with occasional sunshine, wind brisk S.—4 P. M. overcast, wind W. S. W.—9 P. M. calm and misty—distant thunder and rain during the night.

10th. Overcast and calm at daybreak—10 A. M. overcast, wind S.—noon cloudy, occasional sunshine, calm—4 P. M. generally overcast, fog occasionally, wind light S. W.—9 P. M. raining, thunder and lightning S. and S. W., wind S. S. W.

11th. Daybreak—overcast and foggy, wind S. W.,—10 A. M. horizon cloudy, wind W. S. W.—noon raining, wind S., frequent showers and fog, and distant thunder during the afternoon—4 P. M. sunshine, clearing, wind W. S. W.—9 P. M. calm and foggy, distant thunder.

12th. Daybreak—overcast, wind S. W.—10 A. M. partially overcast, wind light N. E.—noon calm and overcast, a storm to S. passing off to E.—1½ P. M. storm to N. passing off to E., a few drops of rain here—4 P. M. cloudy, light rain, wind S. W., storm to S. W.—9 P. M. a few clouds interspersed, calm.

13th. Daybreak—calm and generally overcast—10 A. M. overcast, light wind N. E., sunshine occasionally—noon cloudy, frequent sunshine, brisk W. wind—4 P. M. generally overcast, wind S. W., raining to N., light rain here between 5 and 7—9 P. M. cloudy, wind light S. W.

14th. Daybreak—calm and foggy—10 A. M. horizon cloudy, calm—noon sunshine, cumuli interspersed, wind W.—4 P. M. cloudy S. and W., wind S. W., light rain between 6 and 8—9 P. M. generally clear, wind W.

15th. Horizon cloudy at daybreak, calm—10 A. M. horizon cloudy, calm —noon generally clear, wind W.—4 P. M. cloudy, wind S. S. W.—evening clear—10 P. M. overcast, light rain, wind S. W. strong.

16th. Cloudy and calm at daybreak—10 A. M. calm and cloudy—noon calm and cloudy—4 P. M. clouds interspersed, wind S. W.—9 P. M. cloudy N. and N. W., wind S. W.

17th. Daybreak—cloudy N. and E., cerri interspersed overhead, wind S. S. W.—10 A. M. horizon cloudy, above clear, calm—noon generally overcast, occasional sunshine, wind S. W.—4 P. M. generally overcast, wind S. S. W.—9 P. M. overcast, light fog, wind S. S. W.

18th. Daybreak—generally overcast, wind S. S. W.—10 A. M. generally overcast, heavy clouds S. and W., distant thunder, wind light S. W.—noon overcast, wind S. W.—4 P. M. generally overcast, wind S. W.—distant thunder during the evening—9 P. M. horizon cloudy, lightning to S. W., wind brisk S.

19th. Generally overcast at daybreak, wind S.—10 A. M. calm and foggy—noon foggy, wind S.,—showers and thunder to N. and E. during the afternoon —4 P. M. generally clouded, occasional showers, thunder to W.—wind light W.—evening clear—9 P. M. calm and overcast—much thunder, lightning and rain during the night from various quarters.

20th. Daybreak—calm and overcast—10 A. M. raining, wind N. E.—noon clearing, calm—4 P. M. calm and overcast—evening fine—9 P. M. cloudy N. and E., wind S. W.

21st. Daybreak—overcast and thin fog, wind light S. W.—10 A. M. overcast and thin fog, wind N. N. E.—noon overcast and thin fog, wind N. E.—raining all the afternoon—4 P. M. raining, calm—raining all the evening—10 P. M. generally overcast, wind brisk S. W.

22d. Daybreak—overcast, light S. W. wind—10 A. M. overcast and foggy, wind light S. W.—noon overcast, wind W.—4 P. M. overcast, light rain, strong squalls from W. S. W.—evening clearing.

23d. Generally clear at daybreak, wind S.—10 A. M. cloudy, wind W. S. W.—noon raining, strong S. W. wind—4 P. M. overcast with occasional sunshine, wind W. N. W.—evening fine—9 P. M. clear, wind S. W.

24th. Daybreak—cerri and strat., wind S. W.—10 A. M. calm and overcast—noon generally overcast, feeble sunshine occasionally, wind W.—4 P. M. overcast, light showers, wind S. W.—evening fine—9 P. M. clear, wind W. S. W.

25th. Daybreak—generally clear, wind S. W.—10 A. M. calm and overcast—noon overcast, wind W., heavy showers from 2 to 4—4 P. M. overcast, wind S. W.—9 P. M. generally overcast—strong gale from W. S. W.

26th. Daybreak—overcast and showers, wind strong W. S. W.—10 A. M. overcast, wind W.—noon overcast, showers occasionally, wind S. W.—4 P. M. generally overcast, feeble sunshine at intervals, wind S. W.—9 P. M. generally overcast, lightning to the S. W., strong gale from W.

27th. Daybreak—foggy, wind S. W.—10 A. M. overcast and foggy, calm—noon fog and light rains, wind W.—4 P. M fog, wind N. W.—9 P. M. generally overcast, distant lightning S. and W.—a gale from the W.

28th. Raining at daybreak, calm—10 A. M. calm, fog and light rain—noon rain and fog, wind S. W.—4 P. M. calm, fog and light rain—9 P. M. light rain, distant lightning, wind W.

29th. Rain at daybreak, calm—10 A. M heavy rain since daylight, calm—noon light rain, wind W. S. W.—4 P. M. light rain, wind W. S. W.—rain all day—9 P. M. overcast.

30th. Daybreak—overcast, light rain and fog, calm—10 A. M. overcast, thin fog, wind N. N. E.—noon calm and generally overcast—4 P. M. partially overcast, feeble sunshine, calm,—showers from 5 to 7—9 P. M. bright starlight.

The weather in the early part of June was favorable ; light showers were frequent, but no continued rain or fog—the temperature agreeable and atmosphere tolerably dry ; after the middle of the month the rain was more constant and fogs frequent, and the atmosphere loaded with moisture. The mean depression of a Thermometer, with a moistened bulb the first 15 days, was 3° 8, the last 15 days 1° 7 only—wind light and variable—frequently calm.

Diary of the Weather, July, 1837.

1st. Daybreak—partially overcast, wind S.—10 A. M. cloudy, wind N. E.—noon partially overcast, wind light E.—4 P. M. cloudy, wind W. S. W.—9 P. M. calm and cloudy, distant lightning.

2d. Daybreak—cloudy, (cerri) calm—10 A. M. cloudy S. and W., calm—noon calm and overcast—4 P. M. showers, cloudy S. and W., wind S.—9 P. M. raining, wind S., distant lightning—heavy rain during the night.

3d. Calm and foggy at daybreak—10 A. M. light rain and fog, wind N.—noon light rain, wind E. S. E.—afternoon showers and sunshine alternately—4 P. M. overcast, wind S.—9 P. M. light rain, wind S., distant lightning S. E.

4th. cerri and cerri strat. at daybreak, wind N. E.—10 A. M. fog, wind N. N. E.—noon thin fog, wind N. N. E.—sunshine and showers at intervals during the afternoon—4 P. M. generally overcast, light rain, calm—9 P. M. cloudy W. and S. W., wind S.

5th. Light rain at daybreak, wind E.—10 A. M. generally overcast, wind N. E.—noon calm and overcast—afternoon showery—4 P. M. raining, calm —rain all the evening—9 P. M. overcast, wind S. W.

6th. Raining lightly at daybreak, wind S. E.—10 A. M. light rain, wind N.—noon overcast, wind S. E.—4 P. M. rain and fog, calm—raining all the evening—9 P. M. horizon cloudy, above clear, wind S.

7th. Raining at daybreak, wind N.—10 A. M. overcast and fog, wind E.—noon rain, wind S. W.—4 P. M. rain, wind S. W.—9 P. M. light rain, wind S. W.

8th. Daybreak—calm and generally clear—10 A M. overcast, wind S. W. —noon calm and generally overcast—4 P. M. raining, wind N.—9 P. M raining, wind W.

9th. Daybreak—generally overcast, wind N. N. E.—at 6 A. M. heavy rain —10 A. M. heavy rain, wind N. E.—noon light rain, strong S. wind—4 P. M. clearing to S., calm—7 P. M. heavy rain—9 P. M. raining, wind S. W,

10th. Daybreak—generally overcast, wind S. E.—10 A. M. raining, wind light S. W.—noon calm, light rain—4 P. M. calm, light rain—9 P. M. rain, wind S. W.

11th. Rain and fog at daybreak, wind S. W.—10 A. M. rain and fog, calm —noon rain and fog, wind W.—4 P. M. heavy rain and fog, wind light S. W. —9 P. M. calm and overcast.

12th. Heavy rain at daybreak, wind S. W.—10 A. M. overcast, wind W. —noon rain and fog, wind W. S. W.—4 P. M. rain, wind S. W.—9 P. M. light rain, wind strong W.

13th. Daybreak—overcast, wind W.—10 A. M. overcast, wind W.—noon generally overcast, wind W.—4 P. M. overcast, wind S. W.—9 P. M. rain and fog, wind W.

14th. Daybreak—overcast, wind W.—10 A.M. calm and overcast—noon heavy rain, calm—4 P. M. rain, wind S. W.—9 P. M. overcast, wind S.

15th. Overcast at daybreak, wind S. W.—10 A. M. fog, wind S. W.—noon calm and overcast—4 P. M. overcast, wind W. S. W.—9 P. M. light rain and fog, wind W.—showers during the day.

16th. Light rain and fog at daybreak, wind W.—10 A. M. generally overcast, wind W. S. W.—noon generally overcast, feeble sunshine occasionally, wind N. W.—4 P. M. fog and light rain, wind S.—9 P. M. fog, wind S. W.

17th. Daybreak—rain and fog, strong N. wind—10 A. M. fog and rain, wind S. W.—noon light rain and fog, wind S. W.—ceased raining at 3 P. M.—4 P. M. clearing, feeble sunshine, calm—9. P. M. overcast and calm.

18th. Fog and rain at daybreak, wind N. N. E.—10 A. M. fog and rain, wind N. N. E.—noon heavy rain and fog, wind N. E. strong—4 P. M. fog, wind N. N. E.—evening cloudy otherwise fine—9 P. M. overcast, wind S. W.

19th. Light rain and fog at daybreak, wind N. N. E —10 A. M. fog, wind S. W.—noon light rain, wind N. E —heavy rain in the afternoon—4 P. M. light rain and fog, calm—evening fine but cloudy—9 P. M. overcast and calm.

20th. Rain and fog at daybreak, calm—10 A. M. fog, wind S. W. noon calm, fog—morning and afternoon overcast and foggy, with occasional sunshine for a few minutes and showers at intervals—4 P. M. light rain, wind S.—evening overcast and foggy—9 P. M. rain and fog, calm.

21st. Daybreak—rain and fog, wind N. N. E.—10 A. M. rain and fog, and wind S. E.—noon light rain and fog, wind S. S. W.—4 P. M. clearing to the S., rest overcast, calm—evening fine till 6 P. M. then rain—8 P. M. heavy rain—9 P. M. rain, wind S. S. E.

22d. Rain at daybreak, wind S. W.—10 A. M. fog, wind N.—noon calm and fog, 4 P. M. rain and fog, wind N. N. E.—evening cloudy—9 P. M. calm and overcast.

23d. Daybreak—cloudy (cerri and strat.), wind N.—10 A. M. calm and cloudy—noon rain and fog, wind S. W.—frequent showers during the afternoon—heavy rain at 3 P. M.—4 P. M. rain, wind strong S. W.—evening wet—9 P. M. calm and generally overcast.

24th. Light rain and fog at daybreak, wind N.—10 A. M. calm and cloudy—noon calm and overcast, feeble sunshine and fog at intervals during the afternoon—4 P. M. calm, overcast and thin fog—evening cloudy—9 P. M. rain, calm.

25th. Generally clear at daybreak, wind light N. E —10 A M. cumuli interspersed, wind S. E.—bright sunshine all the morning, noon cloudy S. and W., wind N.—showers and fog occasionally in the afternoon—4 P. M. overcast, wind S. W —evening foggy—9 P. M. cloudy, lightning to S. and S. W. wind S.—rain, thunder and lightning in the night.

26th. Daybreak—overcast, cumuli strat., wind N. E —10 A. M. cumuli interspersed, wind S. E.—noon generally overcast, heavy clouds S. and W., distant thunder, drizzling rain and calm—1 P. M. strong wind, generally light rain—4 P. M. overcast, wind N., light rain during the evening—9 P. M. light rain, wind variable.

27th. Daybreak—overcast and foggy, wind N. E., thick fog and rain after 7 —10 A. M. calm, rain and fog—noon fog and light rain, wind variable—4 P. M. thick fog, wind E.—evening, after 5 fine—9 P. M. overcast, wind N. E.—strong squalls and rain during the night.

28th. Rain and fog at daybreak, strong squalls from S. W. and other quarters all the morning—10 A. M rain and fog, squalls from W.—noon fog and light rain—wind N. E, ceased raining for a short time after 2 —4 P. M. showers, fog and calm—afternoon cloudy—9 P. M. horizon cloudy, wind N. E.

29th. Light rain and fog at daybreak, wind N. E.—10 A. M. foggy, wind S. E., occasional feeble sunshine during the forenoon—noon cloudy, wind S. E. afternoon cloudy—4 P. M. fog and light rain, wind S.—evening rain—9 P. M. calm and foggy.

30th. Daybreak—calm and overcast, rain after 7—10 A. M. fog and light rain, wind N. E.—noon calm and cloudy, afternoon foggy and occasional showers—4 P. M. fog and light rain and calm, heavy rain in the evening—9 P. M. rain and fog, wind S.

31st. Calm and overcast at daybreak, rain and fog at 8—10 A. M. calm and overcast, thin fog—11 A M. rain and fog—noon overcast, wind S. heavy rain in the afternoon—4 P. M. fog and light rain, wind N.—9 P. M. clearing, calm.

July proved a wet and disagreeable month, rain and fogs daily with few and very short intervals of fair weather, the atmosphere consequently saturated with moisture. The mean depression of the wet bulb Thermometer was only 1° 1′, and many days the depression was barely perceptible. Daniell's Hygrometer gave similar indications of the condition of the atmosphere.

Winds light and variable, frequent calms.

Diary of the Weather, August, 1837.

1st. Daybreak—calm, light rain and fog—10 A. M. thin fog and rain, wind N.—noon fog and light rain, calm—occasional glimpses of feeble sunshine during the afternoon—4 P. M. overcast and foggy, wind S. S. E.—heavy rain all the evening—9 P. M. heavy rain and calm—heavy rain all night.

2d. Heavy rain at daybreak with fog, wind N. E.—10 A. M. heavy rain and thin fog, wind N. N. E.—rain and thick fog all the forenoon—noon rain and fog, wind N N. E.—rain ceased for a short time in the forenoon, fog continued—4 P. M. light rain and fog, wind N. E.—evening foggy, with light rain—9 P. M. fog and light rain, wind S. S. W.

3d. Calm and overcast at daybreak—10 A. M. calm and foggy—forenoon foggy, with light showers—noon fog and light rain, wind N.—afternoon showery—4 P. M. overcast and thin fog, rain to the E., wind W.—rain all the evening—9 P. M. rain and fog, wind W.

4th. Calm and foggy at daybreak—10 A. M. fog and light rain, wind N. E. —fog and frequent showers during the forenoon—noon light rain, wind W.— afternoon showery—4 P. M. heavy rain, wind S. W.—evening foggy, with occasional showers—9 P. M calm and overcast.

5th. Raining at daybreak, wind N. E.—10 A. M. thin fog and light rain, calm—forenoon rain and fog—noon light rain, wind variable—ceased raining for a short time in the afternoon and sun shone feebly—4 P. M. calm and overcast—evening fine but cloudy—9 P. M. calm and cloudy.

6th. Calm and foggy at daybreak—rain after 7—10 A. M. overcast, drizzling rain, wind S. W.—noon rain and fog, wind W. S. W.—ceased raining at 2 P. M.—4 P. M. overcast, fog in the vallies, wind W.—evening foggy—9 P. M. drizzling rain and fog, strong W. wind.

7th. Fog and drizzling rain at daybreak, wind S. W.—10 A. M. fog and drizzle, wind W.—forenoon occasional glimpses of feeble sunshine—noon rain and fog, wind W. S. W.—afternoon cloudy—4 P. M. cloudy, wind strong W.—evening cloudy—9 P. M. foggy, brisk W. wind.

8th. Calm and overcast at daybreak—fog and drizzle after 7—10 A. M. overcast and foggy, wind W.—forenoon overcast, occasionally foggy—noon foggy, wind W.—afternoon cloudy, with occasional fog—4 P. M. thick fog, wind W.—evening cloudy—9 P. M. calm, overcast and foggy.

9th. Daybreak—calm, fog and drizzle—10 A. M. rain and fog, calm—ceased raining soon after 11—fog continued—noon calm and foggy—heavy rain, with fog all the afternoon—4 P. M. heavy rain and fog, calm—evening foggy—9 P. M. calm and cloudy.

10th. Calm at daybreak, rain and fog—10 A. M. calm and overcast, fog in the vallies—forenoon foggy—noon rain and fog, wind W. S. W.—afternoon cloudy, with frequent sunshine—4 P. M. overcast and foggy, wind W.—evening wet and foggy—9 P. M. rain and thin fog, calm.

11th. Calm, rain and fog at daybreak—10 A. M. rain and fog, wind W.—constant rain and fog during the forenoon—noon overcast and foggy, wind W.—afternoon cloudy, occasionally fog and light showers—4 P. M. overcast and foggy, distant thunder, wind W.—rain from 4 to 6—9 P. M. overcast and foggy, wind W.

12th. Daybreak—calm, overcast and foggy—rain and fog after 6—10 A. M. calm, clearing near the horizon—forenoon cloudy, occasional feeble sunshine—noon cloudy, fog in the vallies, calm—afternoon cloudy, occasional feeble sunshine—4 P. M. rain and fog, calm—evening rain—9 P. M. fog and drizzling rain, wind S. S. W.

13th. Calm and overcast at daybreak, distant thunder S.—10 A. M. calm and overcast, fog in the vallies—forenoon overcast, occasionally foggy—noon calm and overcast—afternoon overcast—no rain during the day—4 P. M. calm and foggy—evening cloudy, showers and fog occasionally—9 P. M. generally clear, wind W. S. W.

14th. Daybreak—calm and foggy—10 A. M. rain and fog, calm—forenoon rain and fog—noon fog, wind W.—afternoon fog and frequent showers—4 P. M. fog, wind S. W.—evening fog and drizzling rain—9 P. M. rain and fog, wind S. W.

15th. Rain at daybreak, wind brisk S. W.—10 A. M. calm, rain and fog—rain ceased after 11—forenoon overcast—noon rain, wind S. W.—afternoon overcast and occasional showers—4 P. M. generally overcast, clearing to the W., wind W. S. W.—evening drizzling rain and fog—9 P. M. light rain, wind S. W.

16th. Calm and foggy at daybreak—rain after 6—10 A. M. overcast and foggy, wind N.—forenoon overcast, occasionally foggy—noon overcast, wind N. N. E.—afternoon overcast, frequent fog—4 P. M. fog and drizzle, calm—evening rain and fog—9 P. M. calm, heavy rain—rain all night.

17th. Rain at daybreak, calm—10 A. M. calm and overcast, thin fog—forenoon overcast, occasionally foggy—noon calm and foggy—afternoon overcast, frequent showers and fog—4 P. M. fog and drizzle, calm—evening rain—9 P. M. overcast and foggy, wind S. S. W.

18th. Cloudy at daybreak, wind N. N E.—10 A. M. sunshine, cum. and cerri interspersed,—forenoon fine—noon fine, wind W.—afternoon cloudy but fine—4 P. M. horizon cloudy, wind N. E.—evening cloudy—9 P. M. overcast, wind N. E.

19th. Overcast at daybreak, wind N. E.—rain and fog after 7—10 A. M. cloudy, wind N. E.—forenoon fine but cloudy—noon calm and cloudy—afternoon fine but cloudy—4 P. M. overcast, showery, wind S.—evening overcast—9 P. M. overcast, wind N. E.

20th. Fog and drizzle at daybreak, wind N. E.—10 A. M. thick fog, wind N. E.—forenoon foggy—noon foggy, wind N. E —afternoon fine, but cloudy, frequent sunshine—4 P. M. partially overcast, wind W.—evening fine—9 P. M. bright starlight, wind N. N. E.

21st. Daybreak, cloudy, wind E.—foggy after 7—10 A. M. overcast, wind N. forenoon overcast, feeble sunshine occasionally—noon calm and overcast—afternoon fine till 2—then showers and fog—4 P. M. overcast, wind N. N. E.—evening fine till 7, then rain—9 P. M. clear overhead, brisk S. wind.

22d. Light fog at daybreak, wind S. E.—10 A. M. overcast, drizzling rain, calm—forenoon showery—noon generally overcast and calm—afternoon generally clear, slight showers occasionally—4 P. M. horizon cloudy, thunder to S. E. calm—evening rain and fog—9 P. M. rain and fog, calm.

23d. Clear and calm at daybreak—10 A. M. generally overcast, wind W.—forenoon frequently overcast but fine—noon overcast, calm—afternoon fine but generally overcast—4 P. M. rain, wind S. S. W.—evening overcast.

24th. Cloudy at daybreak, wind N. N. E.—10 A. M. calm and overcast,—forenoon fine but frequently overcast—noon overcast, strong S. E. wind—afternoon fine but overcast—showers after 2 and strong variable wind—4 P. M. rain, calm—evening rain—9 P. M. overcast.

25th. Generally overcast at daybreak, wind N. E.—10 A. M. clear, wind S. W.—forenoon clear—noon generally overcast, strong S. E. wind—afternoon occasionally overcast, frequent sunshine—4 P. M. generally overcast, strong N. E. wind—evening fine, lightning S. E. and W.—9 P. M. generally overcast, wind N. E., thunder storm to S.

26th. Thick fog at daybreak, wind N. E. fine after 6—10 A. M. generally overcast, wind E.—forenoon generally overcast—noon overcast, brisk variable

wind—afternoon fine—4 P. M. cumuli interspersed, wind S. E.—evening fine till 8—from 8 to 9 light rain, storm to E.—9 P. M. rain, lightning to E., wind E.

27th. Daybreak—clear, wind N. E.—10 A. M. few cumuli interspersed, wind N. N. E.—forenoon fine, but frequently cloudy—noon horizon cloudy, wind S. —afternoon cloudy—at 3 P. M. violent squall from S. and W. with showers—4 P. M. generally clear, wind E.—evening fine—9 P. M. clear, wind S. W.

28th. Clear at daybreak, wind N. N. E.—10 A. M. generally clear, wind N. E.—forenoon occasionally overcast and noon generally overcast, wind variable—afternoon fine, occasionally overcast and slight showers—4 P. M. overcast, wind S.—evening cloudy, fog occasionally—9 P. M. heavy clouds to S., strong gale from N. E.—much thunder during the night, strong wind and rain.

29th. Fog and drizzling rain at daybreak, wind N. N. E.—10 A. M. heavy rain and fog, wind strong N. N. E.—forenoon rain and fog—noon drizzling rain and fog, wind S. S. E.—afternoon foggy, with occasional showers—4 P. M. clearing to the S. E., rest overcast, wind E.—evening overcast, occasionally foggy—9 P. M. clear overhead and calm.

30th. Daybreak—overcast, calm—10 A. M. calm and overcast—forenoon fine but cloudy—noon calm and overcast—afternoon cloudy but fine—4 P. M. cloudy, calm—evening fine but cloudy—9 P. M. calm and cloudy.

31st. Clear and calm at daybreak—10 A. M. cumuli interspersed, wind N. N. E.—forenoon fine but cloudy—noon cumuli interspersed, wind S. E.—afternoon fine, frequently cloudy—4 P. M. cumuli, calm—evening fine—9 P. M. generally overcast, calm.

The weather continued very unfavorable from the 1st to the 18th of August; the rain, though generally not heavy, was almost continual, and fogs constant; the atmosphere, as in July, damp in the extreme. The mean depression of the wet bulb Thermometer only 1°. Daniell's Hygrometer afforded similar indications of the state of the atmosphere.

Winds very light and variable—generally calm.

On the 18th the weather decidedly improved and continued fine, although frequently overcast and showery, (with the exception of the 29th) to the end of the month. The mean depression of the moist bulb Thermometer increased to 2° 5, and brisk breezes from N. E., E., and S. E.

Diary of the Weather at Dorjéling for September, 1837.

1st. Daybreak—calm and cloudy to N. and E.—10 A. M. cerri and cumuli interspersed, wind N. E.—forenoon fine—noon generally clear, wind N. W.—afternoon fine—4 P. M. heavy clouds N. and N. W.—strong S. wind, distant thunder—evening cloudy but fine—9 P. M. generally overcast, distant lightning, wind E.—rain and thunder storm in the night.

2d. Clear at daybreak, wind N.—10 A. M. generally overcast, wind N.—forenoon cloudy—noon overcast and calm—afternoon cloudy—4 P. M. thin fog, brisk S. W. wind—evening cloudy—rain after 8—9 P. M. light rain, wind S.

3d. Daybreak—foggy, wind E.—10 A. M. fog and drizzle, wind N. E.—forenoon fog and drizzle—noon fog and drizzle, wind S.—afternoon fog and drizzle—4 P. M. fog and drizzle, wind E.—evening fog and drizzle—9 P. M. rain and fog, wind E.

4th. Foggy at daybreak—wind N. N. E.—10 A. M. fog, wind N. E.—forenoon foggy—noon overcast, fog in the vallies, wind E.—afternoon overcast, fog and showers occasionally—4 P. M. fog and drizzle, wind S. S. W.—evening wet and foggy—9 P. M. light rain and fog, wind S. W.

5th. Foggy at daybreak, wind N. E.—10 A. M. fog and rain, wind N. E.—forenoon rain and fog—noon rain and fog, calm—afternoon (till 3) foggy with drizzle—4 P. M. sunshine, few clouds interspersed, calm—evening fine—9 P. M. clear and calm.

6th. Calm and cloudy at daybreak—10 A. M. cerri and cumuli interspersed, calm—forenoon fine but cloudy—noon calm and generally overcast—afternoon overcast—rain after 2—4 P. M. calm, rain, fog in the vallies—evening wet and foggy,—9 P. M. calm and drizzling rain.

7th. Heavy rain at daybreak, calm—10 A. M. heavy rain, wind N. E.—forenoon continued rain and fog—noon heavy rain and fog, wind N. E.—rain ceased at 1 P. M.—remainder of afternoon fine but cloudy—4 P. M. cloudy, wind N.—evening fine—9 P. M. overcast, wind S. S. E.

8th. Calm and overcast at daybreak—10 A. M. calm, cumuli interspersed—forenoon fine but cloudy—noon heavy clouds S. and S. W., wind light N. E.—afternoon generally cloudy—light showers between 2 and 3—4 P. M. cumuli interspersed, wind N. E.—evening clear—9 P. M. overcast, wind E.—rain during the night.

9th. Light rain at daybreak, wind N.—10 A. M. generally clear, wind N. E.—forenoon fine—noon cloudy S. and W., wind E.—afternoon generally overcast, occasionally fog and light showers—4 P. M. calm and cloudy—evening fine—9 P. M. calm and foggy.

10th. Clear at daybreak, wind E. N. E.—10 A. M. cumuli interspersed, wind N. W.—forenoon cloudy but fine—noon generally overcast and calm—afternoon frequently overcast—4 P. M. cloudy, wind W.—evening fine—9 P. M. generally clear, wind E. S. E.

11th. Daybreak—horizon cloudy, wind N. E., thunder to S.—10 A. M. cloudy, wind E.—forenoon cloudy—noon generally overcast, wind S.—afternoon fine—4 P. M. cerri and cumuli interspersed, wind S. W.—evening overcast—9 P. M. heavy rain, wind N. E.—heavy rain all night.

12th. Rain and fog at daybreak, wind E.—10 A. M. fog and drizzling rain, wind N. E.—forenoon constant rain and fog—noon rain and fog, wind N.—

afternoon fog and drizzle—4 P. M. clearing and calm—evening cloudy, fog occasionally—9 P. M. clear, wind N. E.

13th. Clear and calm at daybreak—10 A. M. generally overcast, wind S. W. —forenoon fog occasionally—noon generally overcast, wind W.—afternoon overcast—4 P. M. overcast, wind S. W.—evening generally overcast and foggy —9 P. M. bright moonlight, wind S. W.

14th. Calm and overcast at daybreak—10 A. M. calm and overcast—forenoon overcast—noon calm and overcast—afternoon overcast—4 P. M. overcast, wind S. S. W.—evening cloudy but fine—9 P. M. bright moonlight, wind W.

15th. Calm and overcast at daybreak—foggy after 7—10 A. M. calm and overcast—forenoon overcast—noon overcast, wind W.—afternoon generally overcast, occasional feeble sunshine—4 P. M. overcast, wind brisk S. W.—evening showery and foggy—9 P. M. drizzling rain, wind W.

16th. Fog and drizzle at daybreak, wind W.—10 A. M. overcast and foggy, wind W.—forenoon overcast, occasionally foggy—noon overcast, foggy and drizzle, wind W.—afternoon overcast—4 P. M. overcast, strong W. wind—evening cloudy but fine—9 P. M. cloudy, wind W.

17th. Cloudy at daybreak, wind S.—fog after 7—10 A. M. overcast, wind W.—forenoon overcast—noon drizzling rain, wind W.—afternoon overcast, showers and fog occasionally—4 P. M. overcast and foggy, wind W.—evening foggy and drizzling—9 P. M. fog and drizzle, wind W.

18th. Fog and drizzling rain at daybreak, wind light S. W.—10 A. M. rain and fog, calm—forenoon fog and drizzle—noon fog, wind S.—afternoon overcast, occasionally foggy—4 P. M. fog, wind S. W.—evening foggy—9 P. M. foggy, wind W.

19th. Overcast at daybreak, wind S. W.—fog and drizzling rain after 7—10 A. M. overcast and foggy, wind W.—forenoon overcast and foggy—noon rain and fog, calm—afternoon thick fog—4 P. M. fog, calm—evening foggy—9 P. M. foggy, wind W.—calm and bright moonlight after 10.

20th. Generally clear at daybreak, calm—10 A M. calm and cloudy—forenoon generally overcast—noon overcast, wind W.—afternoon overcast—4 P. M. clouds breaking, wind W.—9 P. M. clearing, wind S.

21st. Thin fog and calm at daybreak—10 A. M. fog and calm—forenoon foggy—noon calm and overcast—afternoon overcast, occasionally foggy—4 P. M. overcast, fog in the vallies, wind W. S. W—evening generally overcast—night overcast and foggy.

22d. Rain and thin fog at daybreak, wind N. E.—10 A. M. generally overcast and drizzling rain, wind E.—forenoon rain and fog—noon rain and fog, wind W. S. W.—afternoon wet and foggy—sunshine for a short time after 3—4 P. M. overcast, wind W.—evening clearing—9 P. M. clear, wind light W.

23d. Calm and foggy at daybreak—cleared soon after sunrise—10 A. M. calm and cloudy—forenoon fine—noon cumuli interspersed, heavy clouds to S.,

wind W.—afternoon cloudy with frequent sunshine—4 P. M. calm and overcast —evening fine, lightning to S.—9 P. M. clear, wind S.

24th. Clear and calm at daybreak—10 A. M. cloudy, wind S. W.—forenoon fine—noon cloudy, wind S. W.—afternoon fine but cloudy—4 P. M. cloudy, wind S. W.—evening cloudy, thunder to S. and E.—a shower after 7—9 P. M. clear, wind W.

25th. Generally clear at daybreak, wind light E.—10 A. M. calm and generally overcast—forenoon fine—noon overcast, wind W.—afternoon fine—4 P. M. calm and cloudy—evening overcast—rain after 7, and thunder—9 P. M. overcast, distant thunder, wind W.

26th. Daybreak—calm and cloudy—10 A. M. calm and overcast—forenoon overcast—noon overcast and calm—afternoon rain—4 P. M. rain, calm—evening fine—9 P. M. clear S. and W., cloudy to N. and distant thunder, wind N.

27th. Clear and calm at daybreak—10 A. M. calm and cloudy—forenoon cloudy—noon calm and cloudy—afternoon cloudy, a light shower at 3—4 P. M. calm and cloudy—evening clear—10 P. M. bright starlight, calm.

28th. Clear and calm at daybreak—10 A. M. cumuli interspersed, wind light N.—forenoon cloudy but fine—noon calm and cloudy—afternoon cloudy, a light shower at 3—4 P. M. clouds interspersed, calm—evening fine—9 P. M. cloudy light W. wind.

29th. Clear and calm at daybreak—10 A. M. few clouds interspersed, calm—forenoon fine—noon calm and cloudy—afternoon fine—4 P. M. cloudy, wind W. evening cloudy—9 P. M. clear, light W. wind.

30th. Clear and calm at daybreak—10 A. M. clear and calm—forenoon fine—noon cloudy, wind light S. E.—afternoon fine, occasionally cloudy—4 P. M. clouds interspersed, calm—evening fine but cloudy—9 P. M. clear and calm.

Diary of the Weather at Dorjéling for October, 1837.

1st. Clear and calm at daybreak—10 A. M. clear and calm, forenoon fine—noon calm and cloudy—afternoon fine but cloudy—4 P. M. cloudy, wind light W.—evening fine—9 P. M clear and calm.

2d. Clear and calm at daybreak—10 A. M. calm and cloudy—forenoon cloudy —noon calm and cloudy—afternoon cloudy, thunder to W.—4 P. M. calm, cumuli interspersed—evening fine—9 P. M. clear and calm.

3d —Clear and calm at daybreak—10 A. M. calm, cumuli interspersed—forenoon cloudy—noon calm and cloudy, thunder to S. W.—afternoon cloudy—4 P. M. cloudy, wind light S. W., thunder to W.—evening fine—9 P. M. cloudy to N., rest clear, wind E.

4th. Daybreak—generally clear, wind light N. E.—10 A. M. generally clear, wind E.—forenoon cloudy—noon calm and cloudy—afternoon cloudy but fine—

4 P. M. calm, cumuli interspersed—evening clear—9 P. M. generally overcast, wind light N.—lightning to W. and light rain.

5th. Overcast at daybreak, wind N. E., thunder to W. and S. W.—10 A. M. rain, wind N. E., forenoon rain—noon rain, calm—afternoon rain—4 P. M. rain, wind brisk N. N. E.—evening rain—9 P. M. rain, wind S. W.—rain all night.

6th. Rain and thin fog and calm at daybreak—10 A. M. heavy rain, wind N. N. E.—forenoon heavy rain—noon rain and fog, wind N. E.—afternoon rain and fog—4 P. M. rain and fog, wind N. E.—evening heavy rain and fog—9 P. M. heavy rain and fog, wind N. N. E.—rain all night.

7th. Light rain and fog at daybreak, wind N. E.—10 A. M. heavy rain and fog, wind N. E.—forenoon heavy rain and fog, distant thunder—noon heavy rain and fog, thunder, wind N. E.—afternoon ceased raining at 2—4 P. M. light rain, wind N., evening rain after 7—9 P. M. drizzling rain, wind N. E.

8th. Generally overcast at daybreak, wind E.—10 A. M. generally clear, wind N. E.—forenoon fine—noon cloudy, wind N. E —afternoon fine—4 P. M. cloudy, wind W.—evening fine—9 P. M. generally clear, wind N. E.

9th. Thick fog and calm at daybreak—rain after 6—10 A. M. calm, cumuli interspersed—forenoon fine—noon fine but cloudy, wind light N. E.—afternoon fine but cloudy—4 P. M. cloudy, wind S. W.—evening cloudy—9 P. M. cloudy, wind N. E.

10th. Daybreak—cloudy to N., wind light N. E.—10 A. M. calm and cloudy—forenoon cloudy, fine—noon calm and cloudy—afternoon fine but cloudy—4 P. M. calm and cloudy—evening fine—9 P. M. generally clear, wind E.

11th. Clear at daybreak, wind N.—10 A. M. clear, wind N —forenoon clear—noon clear, wind N. E.—afternoon clear—4 P. M. clear, wind S. W.—evening cloudy to W. and N. W. distant thunder—9 P. M. clear and bright moonlight, wind S. W.

12th. Clear and calm at daybreak—10 A. M. generally clear, a few cumuli interspersed, wind light N. E.—forenoon fine—noon generally clear, wind S. W.—afternoon cloudy but fine, distant thunder—4 P. M. cloudy, wind W. S. W.—evening cloudy—9 P. M. thin fog, wind S. W.

13th. Daybreak—clear wind light N. N. E.—10 A. M. cloudy S. and S. W., wind E.—forenoon fine but cloudy—noon cloudy and calm—afternoon cloudy—4 P. M. cloudy, wind S. W.—evening fine—9 P. M. generally clear.

14th. Calm at daybreak, cloudy to N., rest clear—10 A. M. calm and cloudy—forenoon cloudy but fine—noon cloudy, wind W. S. W.—afternoon fine but cloudy—4 P. M. cloudy, wind W. S. W.—evening fine—9 P. M. cloudy, wind S. W.

15th. Daybreak—cloudy, N. and W., wind S. W.—10 A. M. cloudy, wind light N. E.—forenoon cloudy but fine—noon cloudy, wind S. S. W.—afternoon cloudy but fine—4 P. M. cloudy, wind strong S. W.—evening fine—9 P. M. light fog, wind S. W.

16th. Daybreak—cloudy, wind light N. E.—10 A. M. cumuli interspersed, wind light E.—forenoon fine—noon cloudy, wind N. E.—afternoon fine—4 P. M. cumuli interspersed, wind E. S. E.—evening cloudy—rain from 7 to 8—9 P. M. cloudy, wind E.

17th. Clear and calm at daybreak—10 A. M. generally clear, wind S. W.—forenoon fine—noon horizon cloudy, calm—afternoon fine—4 P. M. cumuli interspersed, wind W.—evening fine—9 P. M. clear and calm.

18th. Clear at daybreak, wind E.—10 A. M clear, wind W.—forenoon clear—noon clear and calm—afternoon cloudy—4 P. M. cloudy, wind W.—evening clear—9 P. M. clear.

19th. Daybreak—clear, wind N. E.—10 A. M. clear and calm—forenoon clear—noon clear, wind S. W.—afternoon clear—4 P. M. clear, wind S. W.—evening clear—9 P. M. clear, wind S. W.

20th.—Clear and calm at daybreak—10 A. M. clear, wind light S. W.—forenoon clear—noon clear, wind light S. W.—afternoon clear—4 P. M. clear, wind S. W.—evening clear—9 P. M. clear and calm.

21st Generally clear at daybreak, strong S W. wind—10 A. M. cerri interspersed, wind light S. W.—forenoon cloudy but fine—noon cerri interspersed, wind S. W.—afternoon cloudy but fine—4 P. M. cloudy, wind S. W. evening clear and calm—9 P. M. clear and calm.

22d. Daybreak—cloudy nearly calm—10 A. M. cloudy, light S. W. wind--noon fine but cloudy—afternoon fine and cloudy, wind S. W.—9 P. M. distant thunder.

23d. Daybreak—cloudy to the S. and S. W., wind S.—10 A. M. overcast, wind N.—noon overcast, wind S. W.—4 P. M. cloudy—9 P. M. cloudy.

24th. Daybreak—clear—10 A. M. clear, wind N. E.—noon cloudy—4 P. M. overcast, wind N. E.—sunset thin fog—9 P. M. clear.

25th. Daybreak—clear, wind N. E.—10 A. M. clear—noon cumuli, wind S. W.—4 P. M. cumuli, heavy clouds W. and S., sunset clear—9 P. M. bright starlight.

26th. Daybreak—clear and calm—10 A. M. clear, wind N. E.—noon clear—4 P. M. cumuli, heavy clouds on the hills S. and S. W.—sunset clear—9 P. M. bright starlight.

27th. Daybreak—clear, wind N. E.—1 A. M. clear, wind W.—noon clear—4 P. M. clear, wind W.—sunset clear—9 P. M. clear and starlight.

28th. Daybreak—clear, wind N. E.—10 A. M. clear, wind N. E. brisk—noon clear overhead, cloudy to S. and W.—4 P. M. clear, wind W.—sunset clear—9 P. M. clear and starlight.

29th. Daybreak—clear and calm—10 A. M. clear, wind brisk N. E.—noon clear—4 P. M. overhead clear, cloudy N. and S. W.—sunset clear—9 P. M. starlight.

30th. Daybreak—hoar frost, clear and calm—10 A. M. clear, wind W.—noon clear, wind W.—4 P. M. clear, wind W.—sunset calm and clear—9 P. M. clear and starlight.

31st. Daybreak—hoar frost, clear and calm—10 A. M. clear, wind N. E.—noon clear—4 P. M. wind W., clouds on hills N. and W.—sunset clear and calm—9 P. M. starlight and calm.

Diary of the Weather at Dorjéling for November, 1837.

1st. Daybreak—cloudy, light air from S.—10 A. M. clear overhead, cerri to S., wind N. E.—noon cloudy at the horizon—4 P. M. overcast, calm—sunset calm, with heavy clouds—at 9 P. M. foggy and calm.

2d. Daybreak—thin clouds calm—10 A. M. cloudy, wind N. E. light—noon occasional sunshine—4 P. M. wind S. W., heavy clouds on the surrounding mountain—sunset calm, a few cumuli—9 P. M. cerri interspersed, calm.

3d. Daybreak—calm, cerri strati—10 A. M. clear, wind N. E.—noon clear—4 P. M. cumuli interspersed, wind S. W.—sunset clouds disappearing into the vallies—9 P. M. clear and moonlight.

4th. Daybreak—clear and calm—10 A. M. clear, wind N. E.—noon clear—4 P. M. cumuli interspersed, heavy clouds on the hills W. and S.—sunset clearing—9 P. M. cerri interspersed.

5th. Daybreak—calm, cerri strati—10 A. M. cerri interspersed, wind N.—noon passing clouds—4 P. M. cumuli interspersed, heavy clouds on the hills West to South—sunset, clouds sinking in the vallies—9 P. M. cerri strati, calm.

6th. Daybreak—calm, cerri strati—10 A. M. cerri, wind North.

7th. 4 P. M. cloudy, wind S. W., heavy clouds on the hills West and South—sunset clear—9 P. M. cerri strati and calm, moonlight.

8th. Daybreak—clear and calm—10 A. M. cerri, wind North—noon passing clouds—4 P. M. cumuli, wind West, heavy clouds on the hills from West to S. S. E.—sunset clouds sinking into the vallies—9 P. M. cerri strati, calm, moonlight.

9th. Daybreak—clear and calm—10 A. M. clear light North wind—noon clear—4 P. M. cumuli, wind West, clouds on West and Southern hills—sunset heavy clouds approaching from Westward—9 P. M. calm, cerri strati.

10th. Daybreak—clear and calm—10 A. M. clear, wind N.—noon clear, wind W.—4 P. M. cerri, cloudy on the N. W. and South hills—sunset clear and calm—9 P. M. clear moonlight.

11th. Daybreak—clear and calm—10 A. M. cerri, wind N. E.—noon clear—4 P. M. cloudy, wind S. W.—sunset cloudy on Western hills—9 P. M. clear, moonlight, heavy dew.

12th. Daybreak—cerri, wind N. E.—10 A. M. cerri cumuli, wind N.—noon cloudy—4 P. M. cumuli, wind N. E.—sunset overcast—9 P. M. calm, clear, moonlight.

13th. Daybreak—calm and clear—10 A. M. wind N., cerri—noon clear—4 P. M. cumuli, wind S. S. W., cloudy to S. W.—sunset clear and calm—9 P. M. clear and moonlight.

14th. Daybreak—clear and calm—10 A. M. wind N., clear—noon clear, wind W.—4 P. M. cerri interspersed, cloudy on hills to Westward—sunset clear—9 P. M. clear and calm.

15th. Daybreak—clear, wind W.—10 A. M clear, wind N. W.—noon cloudy—4 P. M. wind W. S. W., overcast—sunset overcast—9 P. M. overcast, calm.

16th. Daybreak—clear and calm—10 A. M. cumuli, wind E.—noon cloudy—4 P. M. overcast, wind N. E.—sunset overcast—9 P. M. cloudy and calm.

17th. Daybreak—cloudy—10 A. M. cerri cumuli, wind light from N. E.—noon cloudy—4 P. M. wind W., cloudy—sunset cloudy—9 P. M. cloudy and calm.

18th. Daybreak—clear and calm—10 A. M. cerri, wind N. E.—noon cloudy—4 P. M. light air from N. W., cloudy—sunset cloudy and calm—9 P. M. cloudy, calm, a few drops of rain.

19th. Daybreak—cloudy and calm—10 A. M. cerri strat, wind N.—noon fine, with occasional clouds—4 P. M. cloudy, wind W. S. W.—sunset overcast—9 P. M. cerri strat, calm, with starlight.

20th. Daybreak—cloudy to the Northward—10 A. M. wind West, cerri but generally fine—noon cloudy West to South—4 P. M. overcast—sunset cloudy—9 P. M. cerri strati and starlight, calm.

21st. Daybreak—cerri strati, calm—10 A. M. wind N. E., fine—noon fine—4 P. M. cloudy, wind N. E.—sunset cloudy and calm—9 P. M. cerri strati, calm and starlight.

22d. Daybreak—cerri strati., wind N.—10 A. M. cerri, wind N. E.—noon fine—4 P. M. cloudy, wind N. E.—sunset cloudy—9 P. M. cerri strati, starlight and calm.

23d. Daybreak—cerri—10 A. M. clear, wind N. E.—noon cerri interspersed—4 P. M. cloudy, wind W.—sunset cloudy—9 P. M. cerri strati and starlight.

24th. Daybreak—calm with fog—10 A M. cloudy, wind N. E.—noon cloudy—4 P. M. foggy, wind W.—sunset fog—drizzling rain from 7 at times to 9 P. M. with fog.

25th. Daybreak—overcast, calm—10 A. M. cloudy, wind N. E.—noon cloudy but fine—4 P. M. overcast, light air from N. E.—sunset overcast—9 P. M. cerri and starlight.

26th. Daybreak—clear and calm—10 A. M light air from N. N. E., cloudy—noon cloudy but fine—4 P. M. overcast, wind W.—sunset cloudy—7 P. M. strong wind from W., clear—9 P. M. clear, starlight.

27th. Daybreak—cerri, calm—10 A. M. overcast, wind S. S. W., variable—noon passing clouds—4 P. M. cloudy, strong W. wind—sunset cloudy to W.—9 P. M. partially overcast.

28th. Clear and calm with hoar frost, cerri to N.—10 A. M. cerri strati, wind N. E.—noon fine—4 P. M. cerri cumuli, wind W. S. W.—sunset overcast—7 P. M. rain—9 P. M. cloudy and calm, lightning to S. E.

29th. Daybreak—clear and calm—10 A. M. cerri, wind N. E.—noon clear —4 P. M. cerri, wind variable from N. E.—sunset cloudy to S. and W.—9 P. M. clear, starlight.

30th. Daybreak—clear, wind N. E., hoar frost—clear and fine weather throughout the day, with wind N. E.

APPENDIX D.

Meteorological Register kept at Darjiling, for the month of December, 1836.

	Barometer A.		Thermometer in the Air.				Regtg. Ther.		Rain.	Snow.	Wind.		Appearance of Sky.		Boiling Point at 9 A. M.
	9 A. M.	5 P. M.	9 A. M.	5 P. M.	Depression of moist. bulb. A. M.	Depression of moist. bulb. P. M.	Min.	Max.	Inches.		Morn.	Even.	Morning.	Evening.	
1	...	...	..	...	...	...	..	...	.....	.....	.....	.....	.....	.....	.....
2	...	...	...	...	...	...	...	...	.....	.....	.....	.....	.....	.....	.....
3	23.386	23.329	47	46 5	6	6.5	38	51	Rain.	.....	N. E.	S E.	Fragts. cumuli.	Nimbi.	200.5
4	.348	.308	43	43	5	5	36	48	ditto	.....	N. W.	N. W.	Overcast.	Overcast.	199.8
5	.392	.350	44	44	6	5	34	48	ditto	.....	N.	E.	ditto	ditto.	199.5
6	.430	.394	42.5	43	4	4.5	35	47 5	.....	Snow.	E.	N.	ditto	Cumuli.	200 0
7	.483	.430	43	47	8	9	33	50	.....	.....	E.	N W.	Clear.	Clear.	200.3
8	.483	.440	44	50	9	8 5	34	54	.....	.....	N.	E.	Bright all day.		200.2
9	.475	.423	46	51	7	9	35	54.5	.....	.....	N.	Calm.	ditto.		200.2
10	.424	.398	44	51	11	9	36	53	.....	.....	W.	S. W.	Clear.	Few cirri.	200 0
11	.403	.358	45	50	8	11	35.5	53	.....	.....	Calm.	W.	ditto.	Cirri.	200.0
12	.373	.333	43	49.5	7.5	10	36	51.5	.....	.....	N	W.	Clear all day.		199.7
13	.393	.332	42.5	45.5	5	7.5	35 5	51 5	.....	.....	N. E.	N. W.	Few light cumuli.	Few *cumuli*	200.0
14	.368	.317	45	50 5	8	8.5	36.5	56	.....	.....	W.	N. E	Cirri.	Cirri.	199 5
15	.371	.320	42 5	46	5	6	36 5	51.5	.....	.....	W.	W.	Overcast, cldy. all day.	Overcast.	199.7
16	.400	.314	45 5	51	9	10	32 5	54	.....	.....	N.	W.	Clear all day.		200 0
17	.386	.296	46	50	8	9	33	53	.....	.....	N.	Calm	ditto.		199 7
18	.392	.341	46	52	9 5	12	34	53	.....	.....	W.	W.N.W.	ditto.		200.0
19	.454	.370	47	52	10	9	35 5	54	.....	.....	N. E.	Calm.	ditto.		200.0
20	.392	.312	52	51	9	9	35.5	54	.....	.....	S.	S.	Clear, a few clouds at noon.	Clear.	199.8
21	.385	.303	45.5	48	5.5	7	36 5	53.5	.....	.....	E.	S.S.W.	Overcast, cloudy all day.	Overcast.	199.8
22	.341	.289	45	46	6	5 5	38	50 5	.....	...	W.S.W.	S.W	Misty all day.		200.0
23	.326	.254	44	49	7	7 5	33	52	.....	.....	W S.W.	W.	Few cumuli.	Overcast.	200.0
24	.330	.270	46	45	5	4	33.5	48 5	.....	.....	Calm	W.S W.	Cumuli.	Cumuli.	200.2
25	.342	.274	41	42	4	4	35	50	.....	.....	N.N.E.	N.	Overcast.	Overcast.	200.0
26	.343	.288	43	46	5	7	34	49	.....	.....	N.	W.S W.	Clear all day.		200 0
27	.386	.324	44	48	5	8.5	33 5	49 5	.....	.....	N.N.E.	S W.	Fragts. cum. do., ½ day.	Few cum.	200.0
28	.412	.356	41	45.5	6	7	34	50	.....	.....	S.	W.	Cumuli.	Clear.	200.0
29	.480	.412	41	48	5.5	7	34	51	.....	.....	N.N.E.	Calm.	Clear all day.		200.2
30	.452	.320	51	49	18	9	38.5	55	.....	.....	N.	S. W	Bright all day.		200 2
31	.331	.228	46	43	3	5 5	34	50.5	.....	.....	S.	S.W.	Clear.	Overcast.	200 0
	23 396	.334	44 6	47 6	7.3	7.6	34.9	51.6	.....	.....					200.0

3rd, 4th, and 5th. Distant thunder in the afternoon and light showers during the nights; quantity of rain not measured.

6th. A few flakes of snow fell about 2 P. M. To the W. and N. W. heavy snow showers.

30th Depression of moistened bulb Thermometer at 9 A. M. 18°. Dew-point of Hygrometer 29°. Mim. Temp. during the night, ... 38.5.

Ice above ½ an inch thick in the morning.

Hoar frost and ice every morning, excepting 15th, 20th, 21st, 22nd, and 24th.

Meteorological Register kept at Darjiling, for the month of January, 1837.

	Barometer A.		Thermometers in the Air.				Regtg. Ther.		Rain.	Snow.	Wind.		Appearance of Sky.		
	9 A. M.	5 P. M.	9 A. M.	5 P. M.	Depression of moist. bulb. A. M.	Depression of moist. bulb. P. M.	Min.	Max.	Inches.		Morn.	Even.	Morning.	Evening.	Boiling Point at 9 A. M.
1	23.333	23.272	43	42 5	5	5 5	34	50.5	.....	.....	Calm.	W.	Cumuli, cloudy all day.	Overcast	200 0
2	.323	.258	42	42.5	6	5.5	34	46 5	.....	.....	ditto	Calm.	Cumuli ditto.	Cumuli	199 8
3	.340	.298	40.5	45	7	7.5	32.5	49.5	.....	.....	N.	W.	Clear all day		199.8
4	.400	.308	52	51	16	17	36	54	.....	.....	Calm.	Calm.	Bright all day.		200.0
5	.341	.240	55	48	16	8	39	56	.....	.....	N.	ditto	ditto ditto. very thick ice this night.		200 2
6	.341	.269	45.5	44	9	5	34 5	51	.....	.....	N.	S W.	ditto ditto.	ditto ditto.	200.0
7	.365	.330	44	44	5	6	33	48	.....	.....	Calm.	W.	Clear all day.	ditto ditto.	200.0
8	.430	.366	44.5	45	7	6	33	51	.....	.....	N.	W.	ditto ditto.	ditto ditto.	200 0
9	.404	.336	47	44	8 5	5	34	50 5	.....	.....	Calm.	W.	ditto ditto	ditto ditto.	200.0
10	.380	.268	31	37 5	*	5 5*	31	37.5	.....	Snow,	W N W.	E N E.	Hvy. sn. till after 12.	Cr. & cr. strat.	200.0
11	.380	.322	39	40	5	2	29	45	.....	.....	N E.	Calm.	Bright.	Overcast.	200.0
12	.390	.350	40	43	4	3 5	31	45 5	.....	.....	S. S. E	N. W.	Clear all day.		200 0
13	.404	.316	38	41	3	3	33	45	.....	Sleet,	N.	Calm.	Few cum.	Overcast.	200.4
14	.413	.311	39	38	3	2	31	41	.....	Snow,	N. N. E.	*ditto*	ditto	ditto	200.0
15	.411	.344	37	41	2 5	2.5	30	43	.....	.....	N.	W.S.W	ditto.	Cumuli.	200 0
16	.449	.372	40	41	5.5	4	30	47.5	.....	.....	N	E N. E	Few cr. Clr S & E	Ovrst. N. & W.	200 0
17	.391	.308	42	44	4	3	32	47	.....	.....	S W.	W.	Cirri.	Overcast.	200 0
18	.412	.348	42	46	6	4.5	31	50 5	.....	.....	N N E.	W.	Clear all day.		200.0
19	.391	.268	40 5	43	2 5	2	31.5	47	.....	.....	Calm.	W.	Ovrst. clr. N. & N.W.	Hzy cum W.	200.0
20	.284	.181	42 5	41	2 5	1	34	42.5	.....	.....	W.	Calm	Overcast hazy W.	Misty.	200.0
21	.280	.221	42	41	3	3	34	46	.....	.....	S S.E.	N.	Mist and haze.	Overcast & hazy.	199 8
22	.280	.190	40	44	2	2	33	46	.....	.....	Calm.	W.	ditto ditto,	Mist.	199.8
23	.278	.282	45	45 5	2 5	2	34	45.5	.....	.....	W.	Calm	Overcast and misty.	ditto.	200 0
24	.267	.204	42	46 5	3	2 5	34	48.5	.....	.....	N.	W.	Fragts. cumuli.	ditto	199.5
25	.273	.220	44	47 5	2	3.5	34.5	48.5	.....	.....	N.	S. W.	Misty	Cumuli to W	200.0
26	.268	.208	44	44 5	3 5	4.5	36	49	.06	Hail,	SW sqls	W sqls	Cumuli, hail and rain.	Clr. cum. N	200.0
27	.236	.184	40	47	3	6	33	51	.09	.....	N.	W.	Clear.	Clear.	199.5
28	.232	.192	40 5	40 5	2	3 5	31	44	.05	.....	N.	Calm	Misty.	Rain.	199.5
29	.370	.300	40	43	3	2.	30	47 5	.....	.....	N.	N.	Clear.	Overcast and misty.	200.0
30	.365	270	45	45	5	3	33	48	.....	.....	Calm.	W.	Few cumuli.	ditto ditto.	200.3
31	.306	.244	40	40	2.5	1.5	32	42	.....	.....	N. E.	Calm	Cum and hazy.	Thick mist.	200 0
	23.346	23 274	42 1	43 4	4 9	4.2	32 8	47.2	0.20						

10th. At 4 A. M distant thunder from the S. At 5 A. M. severe thunder storm from S. with heavy snow shower. Snow continued to fall till noon, by which time it was one foot deep on the ground. Some snow remaining on the ground till the 20th.

* The moistened muslin frozen. Hoar frost and ice every morning, excepting the 1st and 21st.

(11)

Meteorological Register kept at Darjiling, for February, 1837.

	Barometer.		Thermometer in the Air.				Regtg Ther.		Rain.	Snow, &c, &c.	Wind.		Appearance of Sky, &c, &c.		Water,
					Depression of moist. bulb.										
	9 A. M.	5 P. M.	9 A. M.	5 P. M.	A. M.	P. M.	Min.	Max.	Inches.		Morn.	Even.	Morning.	Evening.	Boiling Point.
1	23.344	23 284	43	42	3	2	33	48	.....	.....	Calm	Calm	Overcast and haze	Haze and mist	200.0
2	.334	.270	43 5	42 5	4	2	34	48	.....	.....	S W	ditto	Cum haze N and E	Cum haze N	200.0
3	.394	.332	42.5	45 5	3	3 5	33.5	48.5	.....	.....	N E	W	Thk hz & mist N & E c S	Hz N cum dis	200.3
4	.429	.347	49 5	50 5	6.5	6 5	34	53	.....	. ...	W	S	Cum disp hazy N	Cirri haze N	200 6
5	.362	.237	47.5	47	3	5	33 5	52	.....	.....	Calm	W	ditto	Hazy cum S and W	200,2
6	.318	.229	42	45	5	2 5	34	52 5	.....	.....	N	W	Few cum intersp	Overcast	200 0
7	.364	.318	47	49	4	5 5	35	53	.....	.....	Calm	W	Gen clear, haze N	Hazy N cum S	200.3
8	.416	.350	43	48	2	3	35	54.5	.....	.. ...	N	W	Cloudy, hazy N	Cirri horizon hazy	200 5
9	.366	.283	45.5	45.5	3.5	1.5	37.5	52	.....	.....	S	W	ditto hazy near horizon	Rain	200.3
10	.354	.280	45	48.5	2.5	2 5	36	48	0 04	.....	Var	E	Horizon hazy	Cirri cum N	200 2
11	.280	.191	47	44	5	1 5	37	48	0 19	.....	Squalls	S	Cum S W W & N W	Ovst dist thunder	199.8
12	.181	.124	42	41 5	1	1.5	34	42	0.18	⌈2 in.	S	W	Rain	Rain	199,5
13	.187	.157	37	42	1.5	4	29	45	0 11	Snow,	N	S	Clear S W rest misty	Clear	192.5
14	.255	.177	34	36	2.5	3	26	44	.. ..	Hail,	N E	S S W	Generally clear	Cumuli	200.0
15	.293	.252	36	37	4.5	4	26.5	43	.....	.....	N E	W	Clear	Overcast	199.8
16	.272	.213	35	37	2	2	28.5	38	.....	Snow,	S S W	S	Snowing	Thick mist	199 5
17	.348	.327	38	42 5	2	2 5	29	44	.....	⌈1½ in.	Calm	W	Overcast, clear N	Mist	200.0
18	.376	.320	41	40	2	2	33.5	50	.....	.....	S	N N E	Mist	Cum strat and haze	200.0
19	.359	.328	43	50	2	3	33 5	53	.....	.....	Calm	W	Generally clear	Few cumuli S W	200.0
20	.369	.353	43.5	51	1.5	3	36 5	54	.....	.....	N E	N	Thin mist	Clear	200 0
21	.442	.411	46	52	2	6	37	55	.....	.....	N N E	W	Clear	Cum S hazy N	200.3
22	.450	.381	45.5	51	1.5	4	38	55	.....	.....	Calm	W	Haze and mist	Few cirri	200.5
23	.396	.315	52	51	6	3	37	57	.....	.....	N N E	W	B ight	Light haze	199.8
24	.368	.296	47	46	2	2	38	50	.....	.....	Calm	S S W	Overcast & haze	Overcast & hazy	200 2
25	.277	.194	45.5	48	2.5	2 5	37	53	.....	.....	S W	S W	Thin mist	Light clouds	199.5
26	.297	.179	44 5	46	3 5	2 5	38.5	52	.....	.....	N	S W	Cirri & cirstrat	Hazy cum N & N W	190.8
27	.276	.237	46 5	51.5	1.5	4	37.5	55	.....	.....	N	W	Cirri	Cumuli	200 0
28	.346	.294	46	49	1.5	3	38	53	.....	.....	N	S W	ditto	Cum strat	200.0
	23 335	23.274	43.5	45.5	2.9	3.1	34.2	50	0.52	3½ in.					

Frost on the 2nd, 4th, 5th, 6th, 7th, 8th, 10th, 13th, 14 h, 15 h, 16th, 17 h, 19th, 20th, 21st, 22nd, 23rd, and 27th.
The Max. Temperature by frequent observation of the common Thermometer.—Registering Thermometer out of order.

Meteorological Register kept at Darjiling, for March, 1837.

	Barometer.		Therm. in the Air.				Regtg. Ther.		Danl. Hygt.		Rn.	Wind.		Weather, &c. &c.		Boiling Point.	
	10 A. M.	4 P. M.	10 A.M.	M. bb.	4 P.M.	M. bb.	Min.	Max.	Dew-point. 10A.M.	Dew-point. 4 P M.	Inches.	Morn.	Even.	Morning.	Evening.	By Ther. No. 1.	By J. P.'s
1	23.432	23 342	54	49	51	45	38.5	55	48	44	...	Cm WS W	stg	Hazy	Cirri and haze	200.0	...
2	.380	.268	55	47.5	55	48.6	40	56	46	46	...	S W	W	Cirri	Clear	199.8	..
3	.342	.254	56	44	56.5	46 5	40	58	43	44.5	...	Cm S W	stg	ditto	Gen. clear	199.5	...
4	.376	.276	52	46.5	53.5	48	37	55.5	45.5	48	...	N E	Variable	Clear	Few cum	200.0	...
5	.379	.315	53.5	46	54	49	39	56	45	49	...	S	S S W	ditto	ditto	200.3	...
6	.375	.329	52 5	49	54	49	39 5	55	48	48.5	...	Calm	S W	ditto	Clear	200.0	...
7	.384	.312	53	47	53	47.5	40	55	47	47.5	...	ditto S	strong	ditto	Clear horizon N	hazy	199.7	199 7
8	.417	.350	58	51.5	56	50 5	42 5	59	51	50	...	ditto	W	ditto	Clear	199.7	199.7
9	.439	.380	53	50	53	49	43.5	56	50	49	...	ditto S W	stg	Light haze	Cirri and haze	199.7	199 7
10	.412	.290	55	49	56	50.5	45	58	49	50	...	S W	W	Clr ab hor cloudy	Gen ovrst cr & cu	199 8	199.8
11	.332	.255	58	44.5	55.5	44 5	43.5	59	37	42	...	N	S S W	Clear	Clear	199.6	199 6
12	.388	334	57	46	55	47.5	41.5	59	43	47	...	S light	S	ditto	ditto	199.8	199.7
13	.434	.304	55	46	54	47	41	58.5	45	47*	...	Calm	W	ditto horizon hazy	Cirri and hazy	200.0	200.0
14	.287	.150	54	47	50.5	43	41	54	45	41*	...	S W	S	Few cum horizon hazy	Cum S& W	199.6	199.5
15	.215	.167	53	46	54	46	37	54	44	44	...	N E	W	Clear	Cum and haze	199 5	199.5
16	.307	.246	54	47	53	47	40	55	46	46	...	N	N E	do. horizon hazy	Ovrst & thick haze	199.5	199 5
17	.400	.310	55 5	48	55	48	43	59	47	47	...	N E	W	Clr above cum S&E	haze N do. do.	200.0	199.7
18	.396	.282	54.5	49.5	56	49 5	43 5	57.5	48.5	48.5	...	N E	W	Cum S thick haze N	ditto ditto	200.0	199.8
19	.360	.240	56.5	52	52	48.5†	43	59	52	49†	...	N	S W	Cum intspsd thick haze N	Raining	200 0	199.8
20	.325	246	56.5	51.5	59	52	44	60 5	51	52	0 03	N E	W	Cum S haze N	Cum hazy N	199 8	199 6
21	.270	.162	56.5	51.5	53.5	58	45.5	60 5	51.5	48	...	W	W S W	Cum SE hze N	clr above Ovrt&hzy	199.5	199.5
22	.276	.229	59	50	60	51 5	43	63.5	50	49	0 07	N E	Calm	Clear	Partially overcast, hazy	199.5	199 5
23	.379	.319	58	51	56 5	51	45	61	50	51	...	W	S S W	Genl clear horizon hazy	Ovrst & hzy	200.0	199 8
24	.396	.326	54	50	54	51	47	58	50	51	..	W	Calm	Overcast and hazy	ditto ditto	200.0	199.8
25	.373	.300	53	51.5	56	52 5	47	57 5	52.5	52.5	...	Calm	W	Misty	ditto ditto	200.0	...
26	.364	.314	55	52.5	58	54.5	48	58 5	52	54	...	W	Calm	Hazy	ditto ditto	199.8	...
27	.375	.284	58	55.5	59.5	54.5†	50	61.5	55.5	55†	...	W	W stg	Mist & haze	Cum S& W mist N&E	200.0	...
28	.252	.158	65	53 5	65	50	49	66.5	51	40.5	...	N light	S W do	Bright	Bright above horizon hazy	199.6	...
29	.191	.090	61	48 5	61.5	45.5	48	64	42	36	...	S W S	W do	ditto horizon hazy	ditto ditto	199.4	...
30	.237	.179	62	49	69.5	48	47	62	40	41	...	Calm	W	Clr above hor thick haze	Hor hazy	199.4	...
31	.310	.221	58.5	47.5	59	48	45	61.5	43	41.5	...	Variable	W	Horizon hazy, clr above	Thick haze	199.7	...
Mns	23 348	23.265	56	48 9	55 7	48 7	43 1	58.4	47.3	47.2	0.10						

* 13th, 14th, } Dew was deposited on the bulb at 49° / 45° } but immediately vanished. 2nd observation gave the results as stated in the column.

† 19th and 27th. No mistake: the dew-point was carefully observed thus.

Difference between Barometer on Capt. Herbert's station at Darjiling hill, and mine, .063 in. at 56°.

Meteorological Register kept at Darjiling, for the month of April, 1837.

Day.	Barometer. 10 A. M	Barometer. 4 P. M.	Ther. in Air. 10 A. M.	Ther. in Air. 4 P. M.	Mst. Bulb. 10 A. M	Mst. Bulb. 4 P. M.	Regtg. Ther. Min.	Regtg. Ther. Max.	Dani. Hygr 10 A.M.	Dani. Hygr 4 P. M.	Rain. Inches.	Wind. Morn.	Wind. Even.	Appearance of the Sky. Morning.	Appearance of the Sky. Evening.	Boiling Point, at 10 A. M.
1	23.325	23 232	59 5	57.5	50	47.5	44	60 5	50	43	.....	Calm	W	Thk hz nr hor above cl	Thk hz c NW	199.6
2	.338	.227	59	43	50	40	44	60.5	46	39	.....	N	variable	Ditto	Thunder storm	199.7
3	.273	.208	46	50	42 5	47	38	52 5	42.5	47	0 85	S	W	Ovrst Cum and mist	occas sunshine	199 7
4	.265	.200	50	51	47.5	47.5	40	62.8	47	47.5	0.23	Calm	S W	Generally overcast	Overcast	199.6
5	.281	.198	55	53 5	51	50	44	56	51	49.5	.....	W	W	Cum near hor ab cl	Cum S mist N	199 8
6	.276	.187	56 5	60.5	51	53.5	44	60.5	51	53.5	0 16	Calm	W	Cum intspsd	Cum intspsd sunshine	199.8
7	.288	.192	58	58	54	53 5	46	60	53.5	53	.....	N	W	Horizon hazy, above cl	Cum & haze	199.5
8	.278	.175	58.5	59	55	52 5	49.5	64	55	52.5	.....	Calm	S	Cum intspsd hazy N	Heavy clouds S	199.7
9	.307	.237	61	59 5	50	52	48	65	44	52	.....	W	W	Hor hazy ab cl	Ovrt Thud stm N W	200.0
10	.273	.167	52	51.5	50	47	44	55	50	46.5	0 31	Calm	W	Fog	Cirri and cirri strat intspsd	199.7
11	.234	.183	53	60.5	53	53	43	62	52.5	52	0 03	ditto	W	Cum S & S E	Hazy Cum intspsd	199.7
12	.318	.269	62.5	62	54	55	49	63.5	53	54	.....	N E	W	Hor hazy cum S rest cl	Cirri & cum	199 7
13	.355	.245	63	62	55	55	49	66	55	56	.....	Calm	W	Hazy cum intspsd	Thick haze cum	199.8
14	.313	.225	62.5	62	56.5	56	50	66	54	56	.....	ditto	W	Ditto ditto	Ditto ditto	200.0
15	.265	.184	65.5	65	54	53.5	52.5	67.5	50	50	.....	W W	S W	Horizon hazy, rest clear	Thick haze	199 7
16	.305	.229	65.5	65.5	54	51	52	68	45	45	.....	Calm	W	Ditto ditto	Ditto	199.8
17	.340	.224	64.5	65	54.5	55	51	67.5	51.5	55	.....	ditto	Calm	Thick haze	Ditto	200.0
18	.276	.192	64.5	63	55	55.5	51	68	50.5	54.5	.....	ditto	W light	Do few cum intspsd	Do cum intspsd	199 5
19	.253	.192	64	59 5	58	53.5	51	65	58	55 5	.....	ditto	S light	Cum S thick haze	Cumuli rain	199.8
20	.290	.200	62 5	59.5	57.5	57	50.5	62	59.5	58	0.04	S E light	W	Overcast	Ovrt & occasional Mist	200.0
21	.250	.150	61	64	59	57	50	64.5	59	56	0 03	Calm	W strong	Partly ovrt	Overhead cl Thud stm S	199.7
22	.312	.245	69.5	64.5	58	56.5	50	70 5	56	55	.....	W light	W	Clear	Cumuli and haze	199 7
23	.400	.333	67.5	63	52	50	50	68	39	44	.....	W	S W	Horizon hazy, above cl	Thick haze	200.0
24	.460	.396	63 5	64.5	46	48	50	64 5	34	41	.....	S	W	Thick haze	Ditto	200.2
25	.434	.356	64	65	52.5	54	51	66 5	44.5	50	.....	Calm	W	Ditto	Ditto	200.2
26	.428	.348	68.5	64 5	56.5	55	51	68 5	51.5	51	.....	ditto	W	Ditto	Ditto	200.2
27	.432	.357	64 5	64	55	53	52	66	52.5	48	.....	ditto	W	Ditto	Ditto	200.0
28	.416	.328	64 5	65	55	56	52	68.5	52.5	52	.....	N	W	Cum intspsd thk hz	Do cum intspsd	199 8
29	.357	.240	63.5	62.5	58	56	52	66	57	55	.....	N E light	S S W	Ditto	Do light rain	199 7
30	.315	.206	56	64.5	48.5	57.5	46	65.5	48	55	0.28	S	N	Ovrst stm to S	Heavy clouds S W	199.5
Mns	23 322	23 237	60.9	60.2	53 1	52.7	48 1	63.7	50.4	50.9	1.93					199.80

Meteorological Register kept at Darjiling, for the month of May, 1837.

Day.	Barometer. 10 A. M.	Barometer. 4 P. M.	Thermometer 10 A. M.	Thermometer 4 P. M.	Moist. Bulb. 10 A. M.	Moist. Bulb. 4 P. M.	Regtg. Ther. Min.	Regtg. Ther. Max.	Danl. Hygr. Drew-point. 10 A. M.	Danl. Hygr. Drew-point. 4 P. M.	Rain. Inches.	Wind. Morn.	Wind. Even.	Appearance of the Sky, &c. Morning.	Appearance of the Sky, &c. Evening.	Boiling Point at 10 A. M.
1	23 362	23.210	61	57	56 5	53	48	6? 5	56 5	52 5	.....	N E	S W	Cloudy	Storm raining	2 0.0
2	.368	.280	60	61.5	54 5	51	45	65	53	47	0.14	W W	brisk	Cum S & W	Cloudy N & N W	200.0
3	.362	.268	60	55.5	53	52	48	62	53	53 5	09	Slight	S W lig	Cloudy near hor	Ovrst thund storm N	199.8
4	.295	.198	51	49 5	47 5	44.5	38	5? 5	47.5	41 5	1.42	N E	W	Generally clear	Gy Overcast	199 7
5	.330	.260	53	52.5	47.5	49	38	54	47	48	14	N E	W	Cu mul collecting	Overcast light rain	199.7
6	.348	.280	54.5	56	50	52.5	43 5	56	50	52 5	01	W	S W	Overcast	Genly overcast	199 7
7	.391	.327	58	63	54	57.5	48 5	63	54	57	.....	Calm	W	Genl overcast	Cumuli N & N W	200.0
8	.393	... ..	58.5	.....	56	.....	50	.....	56	.....	.....	Do	...	Ovrt & foggy	Storm gathering S W	200.0
9	.350	.252	60.5	59.5	57	5?.5	49	62	57	55.5	1 00	W	S S W	Ovt	Cumuli S & W rest clear	199 7
10	.264	.260	61	58	54	53	45	63 5	53	53	09	W light	S W	Cirri intspsd	Heavy clouds W & S W	199 8
11	.327	.214	59 5	57.5	54	54	47 5	62.5	54	54	.....	N	W	Genl clear	Do N W storm gathering	199 6
12	.340	.194	62	56	55 5	52 5	47 5	63	55	52 5	19	Calm	W	Cum near horizon	Thund storm to W	199 8
13	.265	.173	61.5	59	56	54	48	62	56	5?	84	W	W	Ditto	Clear to N rest overcast	199 5
14	.269	.182	56	57	56	54	49	60	56	55	(2	Calm	S W	Horizon cloudy	Overcast light rain	199.5
15	.276	.214	61	61	57.5	56 5	50	61.5	57 5	56.5	26	Do	S W	Genl ovrt	Horizon cloudy, above cl	199.5
16	.240	.210	60.5	61	59	57.5	48.5	62 5	59	58	30	Do	W	Horizon cloudy, rest clear	Ditto	199.5
17	.324	235	66	6?	59 5	59	51.5	69	58 5	57.5	.....	S W	W	Ditto ditto	Ditto cumuli to S	199.7
18	.307	.202	64	63.5	58 5	57 5	51.5	68	57	57	.....	Calm	W	Cumuli intspsd	Cumli intspsd	200 0
19	.270	.158	61	60	58 5	57	52	66	58	57	.....	Do	S	Hor clouded, ab cl	Storm to S & N W	199 7
20	.245	.158	62	59	58.5	57	50	62 5	58.5	57	37	Do	S W	Fog	Overcast	199 6
21	.247	.154	61 5	56	59	54	52	62	59	54	02	Do	Variable	Fog at intervals	clear Rain storm N E	199 5
22	.268	.200	62	62	57	59 5	49	64	57	59 5	83	W S W	W	Horizon cloudy	Horizon cloudy	199 5
23	.291	.206	64	63	60 5	59	53.5	64 5	60.5	59	.....	Calm	S W	Ditto	Ditto	199.6
24	.271	.227	64	63	59 5	60	52	6?	59	60	40	Calm	W S W	Ditto	clear	199.5
25	.318	.215	64.5	6?.5	61.5	59.5	54	6? 5	61.5	59 5	01	Do	S W	Ovrst mist in the vallies	Cumuli intsps	199 8
26	.302	.292	64 5	61	62	59	55	64.?	62	59	10	Do	Calm	Fog in the vallies	Rn fog in the valies	199 7
27	.257	.216	63 5	63 5	60	6? 5	5?	66 5	60	60.5	11	Do	S W	Ditto	overcast	199 7
28	.273	.185	66	63	62	61	55	67	62	61	(6	Do	W	Partially overcast	Showers	199.8
29	.208	.128	64 5	63	62	61.5	57	65 5	62	62.5	04	Do	S W	Fog	Fog	199.8
30	.184	.136	66	65	64	63.5	58	66.5	64	63 5	(6	Do	W	Ditto	Overcast and raining	199 3
31	.228	.178	67.5	64 5	65	64	60	68	65	64	58	Do	Calm	Genl ovrt fog in vallies	Do & fog	199 3
Mns	23 303	23.215	61.4	60	57 3	56.3	50	63.3	57	56.2	6 16					199 67

May 8th at Ging about 4 miles N. N. E. of Darjiling 1.30 P. M. Barometer 24 876, Thermometer 69°: boiling point of water 203.5.

Meteorological Register kept at Darjiling, for the month of June, 1837.

Day.	Barometer. 10 A. M.	Barometer. 4 P. M.	Thermometer 10 A. M.	Thermometer 4 P. M.	Moist. Bulb. 10 A. M.	Moist. Bulb. 4 P. M.	Regtg Ther. Min.	Regtg Ther. Max.	Dan. Hygrom Dew-point. 10 A. M.	Dew-point. 4 P. M.	Rain. Inches	Wind. Morn.	Wind. Even.	Appearance of the Sky, &c. Morning.	Appearance of the Sky, &c. Evening.	Boiling Point at 10 A. M.
1	23.204	23 108	64	65 5	63	63.5	59	66.5	63	63 5	0.03	W	S W	Generally clear	Cumuli intspsd	199 8
2	.160	.080	65 5	68	61 5	63	57	68	61.5	63	.....	W	W S W	Cirri intspsd	Horizon cloudy	.3
3	.202	.155	64.5	67	60 5	62	54	68	60.5	62	.....	N E	W	Cumuli intspsd	Cumuli intspsd	.3
4	.271	.220	69	69	60	60	53	71	57	58	.....	W S W	S W	Clear	Generally clear	.3
5	.334	.282	67.5	68 5	61.5	62	55 5	69 5	61.5	61	.....	S	Calm	Ditto	Cumuli intspsd	.6
6	.315	.224	66	59 5	61	5.5	54 5	66 5	60	55 5	.....	W	S W	Partially ovrt	Overcast & raining	...
7	.286	.220	64.5	64.5	60	60	51 5	68.5	60	60	33	S W	W S W	Ditto & light haze	Generally clear	.3
8	.346	.258	56	62 5	55	60	55	64 5	55	60	82	W	S	Genl ovrt thnd storm at 9	Cum intspsd	.7
9	.330	.238	64.5	62 5	60	60	56	66	60	60	03	S W	W S W	Generally overcast	Overcast	.7
10	.276	.204	59	62 5	58	60.5	54 5	64	58	61	31	S	S W	Overcast	Overcast & ocly fog	.3
11	.168	.198	64	62	61 5	61	58	65 5	61.5	61	34	W S W	W S W	Horizon cl. above clear	Genl clear	.3
12	.281	.218	64	63 5	61 5	60 5	54	67	61.5	61	11	N E	S W	Partially overcast	Cloudy storm S W	.3
13	292	.188	63	64 5	59 5	61	5.5	66	60.5	60.5	03	N E	S W	Overcast	Genl overcast	.3
14	212	.148	64	65	62	61	55.5	66.5	62	61	22	Calm	S W	Horizon cloudy	Cloudy S & W	.3
15	.194	.142	65 5	66 5	60	62	55.5	68	60	61	02	Do	S S W	Ditto	Cloudy	.2
16	.172	.100	67 5	66	64	63 5	56.5	69	64	63 5	08	Do	S W	Cloudy	Clouds intersp	.2
17	.167	.118	66	66 5	63	64 5	57	69.5	62.5	64 5	.....	Do	S S W	Horzn cloudy, rest clear	Genl Ovrt	.2
18	.197	.098	66 5	68	63.5	66	59	68 5	63	66	.....	S W	S W	Genl heavy clouds S & W	Ditto	.3
19	.225	.175	66.5	64	61 5	62 5	58	67.5	64 5	62.5	04	Calm	W	Fog Cloudy, showers, dist thun W		.3
20	.313	.280	69	63 5	58 5	62	53	65	58.5	62	1.01	N E	Calm	Overcast, and raining	Overcast	.5
21	.392	.322	63	62.5	60 5	61 5	56	66	60.5	61.5	0.15	N N E	Do	Overcast and thin fog	Ditto	200.0
22	.312	.260	61	61	59.5	60	5.5	64	59.5	60	78	W	W S W	Ditto ditto	Overcast and rain	199 8
23	.260	.180	63 5	63.5	61	61 5	55	64	61	61.5	08	W S W	W N W	Cloudy	Overcas	.3
24	.194	.118	65.5	65	62	63	57	66.5	61.5	63	07	Calm	S W	Overcast	Overcast & occlly showers	.2
25	.163	.107	66	63.5	63	62 5	58	67	62.5	62 5	.....	Do	S W	Ditto	Ditto	.2
26	.153	.104	64	63 5	63	63	57.5	65	63	63	44	W	S W	Ditto and fog	Do and fog	199 0
27	.154	.093	63 5	64 5	62	63	57	65	62	63	07	Calm	N W	Fog and light rain	Fog	.2
28	.142	.093	66	63 5	64	62 5	57	66.5	64	62 5	78	Do	Calm	Ditto ditto	Rain and fog	.2
29	.130	.123	60 5	63	60	62	56.5	64	60	62	5.13	Do W	S W	Fog & lt rn (hvy rn til 10 AM)	Rn&fg	.2
30	.187	.130	62.5	67	61 5	65.5	56 5	67	61.5	65	72	N N E	Calm	Overcast & foggy	Partially ovrt	.3
Mns	23 240	23.173	64.1	64 5	61.2	61.8	55 8	66.7	61	61 7	11.59*					199 33

* Quantity of rain by Crosley's registering Pluviometer, 12.62 inches.

Meteorological Register kept at Darjiling, for the month of July, 1837.

Day.	Barometer. 10 A. M.	Barometer. 4 P. M.	Thermometer 10 A. M.	Thermometer 4 P. M.	Wet Bulb. 10 A. M.	Wet Bulb. 4 P. M.	Dan. Hygro. Dew-point. 10 A. M.	Dew-point. 4 P. M.	Reg Th. Min.	Reg Th. Max.	Rain. Inches.	Wind. Morn.	Wind. Even.	Appearance of the Sky, &c. Morning.	Appearance of the Sky, &c. Evening.	Boiling Point at 10 A. M.
1	23.230	23.150	65 5	66.5	63 5	65	63.5	65	56.5	67	0.42	N E	W S W	Cloudy	Cloudy	199 4
2	.204	.138	66 5	55	65	64	65	64	57	68	17	Calm	S	Cloudy S and W	Cloudy S and W	.3
3	.212	.170	65	62	63.5	61.5	63.5	61.5	57.5	66	1.34	N	S	Light rain and fog	Overcast	.4
4	.238	.180	64 5	64 5	63	63	63	63	57 5	65	50	N N E	Calm	Thin fog	Genlly ovrst & light rain	.4
5	.227	.175	62,5	64.5	61 5	63.5	61.5	63.5	57 5	64.5	14	N E	ditto	Generally overcast	Rain	.2
6	.217	.150	64	63.5	62.5	62 5	62.5	62.5	56	65 5	99	N	ditto	Light rain	Rain and fog	.2
7	.190	.117	63	63	62 5	62.5	62.5	62.5	57	65.5	95	E	S W	Overcast and fog	Rain	.2
8	.136	.056	67	64.5	64 5	63	64.5	63	57	67	51	S W	N	Overcast	ditto	.2
9	.068	.004	61	63.5	60	62.5	60.5	62.5	57	64 5	1.91	N E	Calm	Heavy rain	Clearing to S	199 0
10	.050	22 980	65	66 5	63.5	65	63	65	58	67	1.21	S W	ditto	Rain	Light rain	198.8
11	22.988	.929	65.5	67	65	66	65	66	59	68	.03	S W	S W	Rain and fog	Heavy rain	.8
12	.960	.944	62	62	61	61	61	61	59	64	2.70	S W	S W	Rain	Rain	.8
13	23.098	23 084	64.5	63.5	62.5	61 5	62.5	61.5	55 5	65	1 27	W	S W	Overcast	Overcast	199.0
14	.226	.192	66.5	62.5	64	61 5	64	61.5	57	67	1.08	Calm	S W	Ditto	Rain	.3
15	.289	.225	63	63	61 5	62	62	62	57	65	1 01	S W	W S W	Fog	Overcast	.5
16	.202	.111	64.5	63	63	62	63	62	58.5	67.5	24	W S W	S	Genlly ovrst	Thick fog & light rain	.3
17	.141	.095	62	63	51.5	61.5	61.5	61.5	58	64	1.04	S W	Calm	Rain and fog	Clearing	.2
18	.222	.170	58.5	60	57.5	59.5	58	59 5	56	60	1.10	N N E	N N E	Ditto	Fog	.2
19	.258	.184	60.5	63.5	60	63	60	63	56	65	87	S W	Calm	Fog	Fog and light rain	.4
20	.203	.130	61 5	62	60 5	61.5	60.5	61.5	57	64.5	1.29	S W	S	Ditto	Light rain	.2
21	.206	.154	60.5	63 5	60	62.5	60	62 5	57	64	1.07	S E	Calm	Rain and fog	Clearing S rest ovrst	.2
22	.228	.177	63	62 5	62 5	62	62.5	62	57	64	1 06	N	N N E	Fog	Rain and fog	.5
23	.268	.192	66 5	62	65 5	61.5	65.5	62	56 5	67.5	14	Calm	S W	Cloudy	Rain	.5
24	.220	.136	65	66	63	64	63	64	57.5	68.5	1.32	Ditto	Calm	Ditto	Overcast and thin fog	.5
25	.208	.120	67.5	64	65	63	65	63	57	69.5	49	S E	S W	Cumuli interspersed	Overcast	.3
26	.206	.144	66	62 5	63	61	63	61	57	67	81	W	N	Cloudy cumuli S and W	Ditto	.3
27	.212	.139	60	62.5	59 5	61 5	59.5	61.5	58	63	41	Calm	E	Rain and fog	Fog	.2
28	.214	.160	60	61	59.5	60.5	60	60.5	58	61 5	1.88	W squally	Calm	Ditto ditto	Fog and showery	.2
29	.223	.150	61.5	63.5	61	60	61.5	63	57 5	63 5	1.06	S E	S	Fog	Fog and light rain	.4
30	.216	.137	65	65	63	63 5	63	64	57.5	66	61	N E	Calm	Fog and light rain	Ditto ditto	.2
31	.173	.112	65	63	64	62.5	64	62 5	58 5	65	2.63	Calm	N	Overcast	Ditto ditto	.2
Mns	23.185	23 123	63 6	63.5	62.3	62 5	62.4	62.5	57 3	65.5	31.25					199 24

On the 28th and several other occasions, dew deposited on the Hygrometer the instant the æther was dropped on the covered bulb. On the same occasion depression of moistened bulb Thermometer barely perceptible although registered 0.5.

• Quantity of rain by Crosley's registering Pluviometer, 35.52.

Meteorological Register kept at Darjiling, for August, 1837.

Day.	Barometer. 10 A. M.	Barometer. 4 P. M.	Ther. in Air. 10 A. M.	Ther. in Air. 4 P. M.	Wet Bulb Tr. 10 P. M.	Wet Bulb Tr. 4 A. M.	Regtg. Ther. Min.	Regtg. Ther. Max.	Danl. Hygr. 10 A. M	Danl. Hygr. 4 P. M.	Rain. Inches.	Wind. Morn.	Wind. Even.	Weather, &c. Morning.	Weather, &c. Evening.	Boiling Point Water.
1	23.166	23.085	61.5	62	61	61.5	58	66	61.5	61.5	0.96	N	S S E	Rain and thin fog	Ovrst and foggy	199.4
2	.170	.126	60.5	61.5	60	60	57.5	63	60	61	7 76	N N E	N E	Heavy rain	Fog and light rain	.4
3	.220	.157	63 5	65	63	64	57 5	66 5	63.5	64	43	Calm	W	Fog	Heavy fog overcast	.6
4	.216	.153	62 5	61	62	60.5	58	63.5	62	61	1 13	N E	S W	Fog and light rain	Heavy rain	.3
5	.222	.192	62	62 5	61.5	61.5	58	64	61.5	61.5	75	Calm	S W	Ditto	Overcast	.2
6	.238	.145	62 5	63 5	61	62 5	58	65.5	61	63	77	S W	W	Ovrt drizzle	Ovrst fog in vallies	.3
7	.190	.125	63 5	65	63	62 5	58	65	63	62 5	28	W W	strong	Fog and drizzle	Cloudy	.2
8	.236	.178	63.5	63 5	62	62 5	57	61	62	62.5	09	W	W	Overcast and fog	Thick fog	.4
9	.274	.215	63	62	62	62	58 5	64 5	62	62	1.19	Calm	Calm	Rain and fog	Rain and fog	.4
10	.297	.220	64 5	68 5	63.5	65 5	59	69	61 5	65.5	83	ditto	W	Ovrt fog in vallies	Ovrt and foggy	.4
11	.292	.230	66	65.5	65	65 5	60	68	65	65.5	2 20	W	W	Rain and fog	Do distant thunder	.6
12	.330	.268	63	65	62	63 5	58	68	62	63.5	97	Calm	Calm	Clearing near horizon	Rain and fog	.8
13	.306	.220	63	66 5	62	65	58.5	69	62	65	38	ditto	ditto	Ovrt fog in the vallies	fog	.5
14	.230	.162	64	64 5	63	63 5	59	67 5	63	63.5	38	ditto	S W	Rain and fog	fog	.4
15	.231	.158	64	62 5	63	61	58	65 5	63	61	1.24	ditto	W S W	Rain & fog	Genl ovrt clearing to W	.3
16	.280	.220	61	59	60	58.5	56 5	63	60	58.5	14	N	Calm	Overcast & foggy	Fog and drizzle	.6
17	287	.203	61	60.5	59 5	60	54 5	62.5	59.5	60	2.17	Calm	ditto	Ditto	Heavy rain	.7
18	.271	.194	66	64	63	59 5	55	69	63	60.5	.....	ditto	N E	Sun cum & cirri intspsd	Cum intspsd	.5
19	.288	.210	64	63 5	62.5	60.5	57	66 5	63	60	21	N E	S	Cloudy	Overcast showery	.5
20	.296	.225	61	63.5	60.5	62.5	57	66	61	62 5	40	N E	W	Thick fog	Overcast and foggy	.4
21	.297	.269	61	61	60	60	56.5	64 5	60	60	10	N	N N E	Overcast	Ditto	.7
22	.262	.155	61	66 5	60	63 5	56	66.5	60	63.5	46	Calm	Calm	Drizzle	Hor cloudy, thunder S E	.6
23	.242	.181	67	65	64	63	56	67	64	63	03	W	S S W	Cum	Showery	.5
24	.285	.200	65	64.5	62	62	59	66	62	62	18	Calm	Calm	Overcast	Rain	.5
25	.288	.226	68	63	63	60.5	59.5	68	63	60.5	.....	S W	N E	Clear	Generally ovrst	.3
26	.290	.220	66	65	64	62	59.5	68	64	62	03	E	S E	Genl overcast	Cum intspsd	.4
27	.270	.164	66	61	63	56 5	58	67.5	63	56	.....	N N E	E	Few cum intspsd	Genl clear	.4
28	.270	.203	66	61	62	58	56	67 5	62	59	82	N E	S	Generally clear	Overcast	.4
29	.279	.253	59 5	59 5	59	58	55	62	59	58	49	N N E	E	Heavy rain & fog	Clg to S rest ovrt	.5
30	.338	.275	64.5	66	62.5	63 5	55	67 5	62.5	63 5	03	Calm	Calm	Overcast	Cloudy	.8
31	.323	.232	68	67.5	65	63 5	57	70	65	63.5	04	N N E	Calm	Cumuli intspsd	Cumuli	.8
Mn.	23.264	23.191	63 5	63.5	62.1	61.7	57.4	66.1	62 1	61.8	21 51*					

* Rain by Crosley's Pluviometer 28.22 inches.

Depression of Wet bulb Thermometer barely perceptible on many days in the early part of the month.

Meteorological Register kept at Darjeling, for September, 1837.

Day.	Barometer. 10 A. M.	Barometer. 4 P. M.	Ther. in Air. 10 A. M.	Ther. in Air. 4 P. M.	Wet. Bulb. Tr 10 A. M.	Wet. Bulb. Tr 4 P. M.	Regtg. Ther. Min.	Regtg. Ther. Max.	Dew-point. 10 A. M.	Dew-point. 4 P. M.	Rain. Inches.	Wind. Morn.	Wind. Even.	Weather, &c. Morning.	Weather, &c. Evening.	Boiling Point Water.
1	23.300	23.273	68	65 5	62 5	60	59 5	70	62.5	58.5	0.66	N E	S	Cirri cum intspsd	Hvy cly N & N W	.7
2	.316	.210	63	62 5	61	61.5	54.5	68.5	61	61.5	64	N	S W	Generally overcast	Thin Fog	.7
3	.319	.240	61	58 5	60	58	56	61.5	60.5	58	64	N E	E	Fog and drizzle	Fog and drizzle	.7
4	.246	.162	60	60.5	59.5	60	55.5	63	59 5	60	35	N E	S S W	Fog	Ditto ditto	.5
5	.211	.148	59.5	61.5	59	60.5	57	62.5	59	60 5	59	N E	Calm	Fog and rain	Cirri and cum intspsd	.5
6	.195	.122	64	64	62	62.5	56	65 5	62	62 5	1 29	Calm	Calm	Cum & cirri intspsd	Rain fog in vallies	.5
7	.190	.127	59	61	58.5	59	57.5	62.5	58.5	59	2 69	N E	N	Heavy rain	Cloudy	.5
8	.257	.205	65	63 5	60 5	61	56.5	66	60	61	87	Calm	N E	Cloudy, cumuli	Cum intspsd	.6
9	.290	.215	65.5	65.5	62.5	63	56.5	66	63	63	02	N E	Calm	Generally clear	Cloudy	.6
10	.300	.223	68	67 5	64	65	57	69.5	64	65	.....	N W	W	Cum interspersed	Ditto	.5
11	.324	.245	66.5	65.5	63	60	58	67	62.5	60	2 43	E	S W	Cloudy	Cum and cirri	.6
12	.350	.300	59.5	61	59	60	55	62	59	60	64	N E	Calm	Fog and drizzling rain	Clearing	.7
13	.360	.300	64.5	62	62	60.5	56	65 5	62	60.5	03	S W	S W	Generally overcast	Overcast	.7
14	.388	.310	65	64 5	63	62.5	56 5	65	63	62.5	04	Calm	S S W	Overcast	Overcast and foggy	.8
15	.395	.314	63.5	63	61.5	61	56	65	61 5	61	12	ditto	S W	Ditto	Overcast	.8
16	.308	.192	64.5	61.5	62	60	58	65	62	60	02	W	W	Overcast and foggy	Ditto	.6
17	.250	.184	64	61.5	61 5	60 5	57	64.5	61	60 5	31	W	W	Overcast	Overcast and foggy	.5
18	.292	.236	61 5	60	60	58.5	55	62	60.5	58.5	19	Calm	S W	Rain and fog	Fog	.7
19	.328	.280	59	59 5	58	58 5	55	60 5	58	58.5	06	W	Calm	Overcast and fog	Ditto	.7
20	.387	.305	60.5	62	59	60	53	66	59	60	08	Calm	W	Cloudy	Clouds breaking	.7
21	.414	.320	59 5	62 5	59	61	55	64	59	61	42	ditto	W S W	Fog	Overcast	200.0
22	.442	.376	58	59	57	57 5	55	61	57	57.5	56	E	W	Gnly overcast & dzzg rn	Ditto	200 0
23	.446	.334	60	62	58	60	53	65.5	58	60	.....	Calm	Calm	Cloudy, cumuli	Ditto	199.8
24	.410	.300	60 5	63	58	60	59.5	66	58	60	01	S W	S W	Cloudy	Cloudy (cum)	.7
25	.390	.280	59.5	63 5	58	60 5	53	64.5	58	60	55	Calm	Calm	Generally overcast	Cloudy (cum)	.7
26	.374	.278	57	57	55.5	55	53	61	55 5	55	27	ditto	ditto	Overcast	Rain	.7
27	.434	.343	62	61	59	57	51.5	63	59	57	01	ditto	ditto	Cloudy	Cloudy	200 0
28	.446	.330	63	63	59 5	59	52	66	59 5	59	03	N	ditto	Cumuli intspsd	Cumuli	200.0
29	.444	.350	67	65	61	62	53	67	64	62	.....	Calm	W	Ditto ditto	Ditto	200.0
30	.437	.336	65	62.5	61.5	59	52.5	65.5	61.5	59	07	ditto	Calm	Clear	Cldy cirri & cum intspsd	199 8
Mn.	23.341	23.259	62.4	62 3	60.3	60.1	55.2	64.7	60.3	60	13.59					

Rain by Crosley's Pluviometer 15.47 inches.

Meteorological Register kept at Darjiling, for October, 1837.

Day.	Barometer. 10 A. M.	Barometer. 4 P. M.	Thermometer 10 A. M.	Thermometer 4 P. M.	Wt. Bulb. Tr. 10 A. M.	Wt. Bulb. Tr. 4 P. M.	Regtg. Ther. 10 A. M.	Regtg. Ther. 4 P. M.	Dew-point. 10 A. M.	Dew-point. 4 P. M.	Rain Inches.	Wind. Morn.	Wind. Even.	Appearance of the Sky, &c. Morning.	Appearance of the Sky, &c. Evening.	Boiling Point Water.
1	23 442	23.342	65	67	61	63	53	68	60.5	63	.....	Calm	W	Clear	Cloudy	199.8
2	.408	.310	66	63	62	59 5	58 5	67	62	59.5	.....	Ditto	Calm	Cloudy cumuli	Cum interspersed	.8
3	.395	.291	68	62	64	59	59 5	68	64	59	.....	Ditto	S W	Cum intspsd	Cloudy thunder to W	200 0
4	.384	.308	65	64	58 5	57	53.5	67	57	56	0.08	E	Calm	Generally clear	Cum interspersed	199 8
5	.382	.288	56	54.5	54	50.5	50 5	56	54	50	3.47	N E	N N E	Rain	Rain	.8
6	.376	.316	54.5	55	53 5	54	51	55	54	54	4.87	N N E	N E	Heavy rain	Heavy rain and fog	.7
7	.345	.275	54	52.5	53 5	51	52	55	53 5	51	2.58	N E	N	Ditto ditto	Rain	.7
8	.280	.195	62	63	58	59.5	50	63	58	59.5	03	N E	W	Generally clear	Cloudy	.5
9	.260	.190	60.5	60 5	57	57.5	53.5	63	58	57.5	01	Calm	S W	Cum interspersed	Ditto	.5
10	.316	.237	61	61	58	59	53 5	64	58	61	.....	Ditto	Calm	Cloudy	Ditto	.6
11	.350	.274	63	65	51.5	58	52 5	67	47	57	.....	N	S W	Clear	Clear	.6
12	.375	.315	62	64	57	59	52 5	67	57	58 5	.....	N E	W S W	Generally clear	Cumuli	.7
13	.425	.375	62	64	59	60	51.5	66 5	59	60	.....	E	S W	Cloudy S & S W	Cloudy	.8
14	.434	.355	62	62	58 5	58	53	66.5	58 5	58.5	.....	Calm	W S W	Cloudy	Ditto	.8
15	.407	.320	59	60	56 5	56	51.5	63 5	56 5	56	.....	N E	S W	Ditto	Ditto	.8
16	.391	.312	59.5	58	55	54	49	61	55	54	25	E	E S E	Cum interspersed	Cum interspersed	.7
17	.420	.373	60	62.5	53.5	57.5	45	62 5	50	57.5	.....	S W	W	Generally clear	Ditto ditto	.7
18	.516	.439	62	60	55	55	48	63	53	54	.....	W	W	Clear	Cloudy	200.0
19	.556	.495	64	65	52	58	50	67	46	56	.....	Calm	S W	Clear	Clear	.2
20	.558	.448	64	64 5	56 5	56	50	65	55.5	52	.....	W	S W	Ditto	Ditto	.2
21	.472	.377	62	61	49.5	53.5	49 5	65	40	53	.....	S W	W	Cirri interspersed	Cloudy cirri	200.0
22	.411	.300	63	60.5	57	55 5	50	64 5	.....	.....	.....	S W	S W	Cloudy cirri	Cumuli	...
23	.389	.328	55.5	58	53	54	47	60	.....	.....	.....	N	S W	Overcast	Ditto	...
24	.438	.346	58 5	58	53.5	54	46	62	54.5	54	0.05	N E	N E	Clear	Overcast thunder N	...
25	.424	.372	59 5	59	55	56	46	62	55	55.5	.....	N E	S W	Ditto	Cumuli	00.0
26	.421	.390	64	60.5	57	55.5	48	64	56	55	.....	N E	S S W	Ditto	Cum interspersed	199.7
27	.448	.368	64	64	56	57	48	65	53	52	.....	W	W	Ditto	Clear	200.0
28	.400	.372	56	61	50	55	46	62	43	52	.....	N E	W	Ditto	Ditto	199.7
29	.438	.364	54	60	46.5	52	44	62	38.5	49	.....	N E	S W	Ditto	Ditto	.8
30	.450	.380	56	59	51	53	44	60	44.5	48.5	.....	W	W	Ditto	Ditto	.7
31	.380	.300	50	53	44 5	51.5	43 5	59	37	47	.....	N E	W	Ditto	Ditto	.7
Mn.	23.409	23.331	60	60.5	55	56	49 5	66.5	53	55	11.295					

Meteorological Register kept at Darjiling, for the month of November, 1837, to complete the year.

Day.	Barometer. 10 A. M.	Barometer. 4 P. M.	Ther. in Air. 10 A. M.	Ther. in Air. 4 P. M.	Wet. Bulb. Tr 10 A. M.	Wet. Bulb. Tr 4 P. M.	Regtg. Ther. Min.	Regtg. Ther. Max.	Dew-point. 10 A. M.	Dew-point. 4 P. M.	Rain. Inches.	Wind. Morn.	Wind. Even.	Weather, &c. Morning.	Weather, &c. Evening.	Boiling Point Water.
1	23.318	23.228	53 5	52	49	50	44 5	59	45	49	.....	N E	S W	Clear	Overcast	199.5
2	.348	.296	48	54	46	52	43	56	44	50	.....	N E	S W	Cloudy	Cumuli	.4
3	.432	.332	53 5	57	50	51	43.5	59.5	44.5	46	.....	N E	S W	Clear	Cloudy	.5
4	.410	.322	57	60	51	53	45	61	45	49	.....	N E	W	Clear	Cumuli	.7
5	.348	.256	53	54.5	49	50	44	57	47	50	.....	N	W S W	Cirri interspersed	Cumuli intspsd	.4
6	296	.....	50	.....	47.5	.....	41.5	.....	48	.....	.....	N	.....	Cirri	.....	.3
7	.....	.252	.....	52	.....	49	42.5	55.5	.....	50	.....	.....	S W	.....	Cloudy	.....
8	.374	.272	53	57	50	53	42	58	58 5	51	.....	N	W	Cirri	Cumuli	.6
9	.350	.288	50.5	58	46	53.5	43	60	40	52	.....	N	W	Clear	Ditto	.7
10	.382	300	55	60	50	54 5	46.5	61	49	53	.....	N	W	*Ditto*	*Cirri*	.9
11	.370	.280	55.5	55 5	52.5	52	45 5	57 5	53	53	.....	N E	S W	Cirri	Cloudy	.7
12	.350	.284	55	56 5	53	52	45	58.5	53	52.5	.....	N	N E	Wr Cumuli	Cumuli	.5
13	.380	.324	55	58	50 5	53	46	61	48	52.5	.....	N	S S W	Cirri	Ditto	.7
14	380	.318	57	57.5	52	53	47	63	49	52	.....	N	W	Clear	Cirri interspersed	.7
15	.360	.264	57	55 5	54	51 5	49 5	61	52	51	.....	N W	W S W	Ditto	Overcast	.8
16	.348	.250	53	53	50	51	45	55	49	51	.....	E	N E	Cumuli	Ditto	.3
17	.386	.342	55	54	53	52.5	45	57	53	53	.....	N E	W	Cirri Cumuli	Cloudy	.5
18	.434	.348	54	55	51 5	52 5	46	57	50	52	.02	N E	N W	Cirri	Ditto	.6
19	.394	.334	53 5	52 5	51	50	47	58	51	50	.....	N	W S W	Cirri strati	Ditto	.7
20	.420	.302	56	54	53	51	46	55	52.5	51	.....	W	W	Cirri generally fine	Overcast	.7
21	.374	.308	54	53	51.5	51	45	55	51	51	.....	N E	N E	Cirri strati fine	Cloudy	.8
22	.384	.292	55	53	53	50 5	44.5	55	53	50	.....	N E	N E	Cirri	Ditto	.8
23	.350	.280	52	53	49 5	50	43 5	55	49	50	.....	N W	W	Clear	Ditto	.6
24	.340	.270	47	49	46	48	43.5	51.5	46	47	.04	N E	W	Cloudy	Thick fog	.5
25	.372	.286	48	49	47	48	42	51	46	47	.....	N E	N E	Ditto	Overcast	.5
26	.304	.212	47	48.5	46.5	46 5	41	50	46	46	.....	N N E	W	*Ditto*	Cloudy	.2
27	.274	.190	44	49	43	46	40	49.5	41 5	42	.....	S S W	W	Overcast	Ditto	.3
28	.324	.248	46 5	49	44.5	46	38	50.5	45	46	.09	N E	W S W	Cirri strati	Cirri cumuli	.5
29	.392	.350	49	52	47	49	39	53	47	46	.....	N E	N E	*Cirri*	Cirri	.7
30	.478	.390	46 5	53	42	43	40	55	32	32	.....	N E	N E	Clear	Clear	200 0
Mn.	23.368	23.290	52	53.5	49	50	43.5	56.5	47.5	48.5	.15					

14th December 1837,	10 A. M.	Barometer,	23 000	Thermometer,	42°
Ditto,	Noon.	Ditto,	22.400	Ditto,	52
17th Ditto,	1 P. M.	Ditto,	22 184	Ditto,	51
Ditto,	2 P. M.	Ditto,	22.040	Ditto,	57

Meteorological Register kept at Titalya, for the month of October, 1836.

	Barometer A.		Thermometer in the Air.				Regtg. Ther.		Rain.	Wind.		App. of Sky.		
	8½ A. M.	4½ P. M.	8½ A. M.	Depression of m. bulb.	4½ P. M.	Depression of m. bulb.	Min.	Max.	Inches	8½ A. M.	4½ P. M.	8½ A. M.	4 P. M.	
1	29.506	463	71	.5	73	1	69	73	4.53	E N E	N E	Rain.	Rain.	
2	.592	.541	72.5	.5	81.5	5.5	70	82.5	1	N E	W S W	ditto	Cum.	October 6th, 2 P M
3	.576	.503	71	.5	82.5	10	68.5	84	.....	W	S W	Fog.	Clear.	Thermometer in air 84°
4	.672	.583	75	2.5	85.5	13.5	70	85.5	.....	N E	S W	Cirri.	Few Cum	Moistened bulb 72°
5	.712	.650	75	4.5	83	14	66.5	83.5	.....	N E	Calm	ditto	Clear.	*Dew-point by Daniell's*
6	.740	.664	78.5	3.5	85	13	70.5	85	.....	N E	W	Cum.	ditto	Hygrometer 72°
7	.776	.673	76.5	6.5	87	12	68	87	.....	E N E	W	Clear.	ditto	
8	.723	.615	75.5	6.	87	11.5	66	87	.....	N E	W	ditto	ditto	October 7th, 1 P M
9	.727	.652	76	4.5	88	14	66	88	.....	N E	Calm	ditto	ditto	Therm 85, Moist bulb 72°
10	.754	.671	75	5.	87.5	12	67	88	.....	E	W	ditto	ditto	Dew-point by Hyg 73°
11	.763	.695	76	5.5	88	12.5	68	88	.....	N E	W	ditto	ditto	
12	.763	.648	76	4.5	86.5	11.5	69	87	.....	E N E	W	ditto	ditto	October 14th, 1 P M
13	.742	.684	77	4.	85.5	11	70.5	88	.....	N E	W	ditto	ditto	Therm 84°, Moist bb 73.5
14	.718	.662	75.5	3.	84..	10	69	85.5	.....	E	W	do fog ear	ditto	Dew-point by Hyg 75°
15	.690	.673	67.5	2.5	82.5	10.5	64	84.5	.....	W	W	do. do.	Cum.	Water boils 211.24
16	.723	.660	68.5	3.	79	13	62.5	81	.....	E	S W	Few cum	Clear.	Barometer 29,700
17	.792	.713	70	3.	82	14	64	82	.....	N E	E S E	ditto	ditto	October 19th, 1 P M
18	.805	.722	70	3.5	82.5	14.5	65	83	.....	N N E	N E	Clear.	ditto	Therm 83, Moist bb 69.5
19	.802	.727	69	5.	82.5	13	65	83.5	.....	N E	S W	ditto	ditto	Dew-point by Hyg 69°
20	.826	.702	70.5	3.5	82.5	12.5	65	83	.....	E N E	W	Cirri.	ditto	Water bls 211.5 Br 29.770
21	.837	.782	71	4.5	82	13	64.5	83	.....	N E	W	Clear.	ditto	October 21st, 1 P M
22	.853	.770	70	4.	81	13	64	83	.....	E	W	ditto	ditto	Therm 83, Moist bb 69°
23	.850	.727	70	4.	82	12.5	63	83	.....	E N E	W	ditto	ditto	Dew-point by Hyg 68°
24	.797	.694	72	6.5	82.5	14.5	64	82.5	.....	E N E	S W	ditto	ditto	Water boils 212 . Br 29.800
25	.820	.740	71.5	4.5	81	14	64	83.5	.....	E N E	W	ditto	ditto	October 31st, 1 P M
26	.800	.713	70.5	4.	81.5	11.5	64	82	.....	N	S E	ditto	ditto	Ther 77, Moist bulb 70°
27	.783	.700	70.5	4.5	83.5	13.5	63	84.5	.....	N	Calm	ditto	ditto	Dew-point by Hyg 71°
28	.780	.690	70.5	4.5	84	12	65	85	.....	N E	S	ditto	ditto	Water boils 211.5, Barometer 29.736.
29	.782	.664	72	4.	84	12	66	85	.....	N	Calm	ditto	C Sto NE	
30	.768	.682	73.5	4.5	82.5	10.5	67	83.5	.....	E	S E	Cirri.	Cirri.	
31	.778	.666	71	3.	77	7	68	78.5	.....	N E	E N E	Cum.	Cum.	
Means,	29.750	.670	72.4	4.2	83.1	11.8	66.4	83.9						

Meteorological Register for the month of November, 1836, kept at Titalya, &c.

Observations made at		Barometer A.		Thermometer in the Air.				Regtg. Ther.		Wind.		Weather.		
		8½ A. M.	4½ P. M.	8½ A. M.	4½ P. M.	Depression of the moistened bulb. 8½ A. M.	4½ P. M.	Min.	Max.	Morn.	Even.	Morn.	Even.	Boiling Point at 8½ A. M.
Titalya, ...	1	29.742	29.644	70	79.5	3	9.5	65	80.5	E	W S W	Cum	Cum	
Ditto, ...	2	.640	.520	70.5	80.5	4	11.5	65	81.5	N E	W	ditto	Clear	
Ditto, ...	3	.616	.544	67	79	3	12.5	63	81.5	Calm	W	Fog, early clr	do	
Ditto, ...	4	.737	.686	63.5	80.5	2.5	16	59	81.5	N W	W	ditto ditto	ditto	
Ditto, ...	5	.804	.749	69	80.5	4.5	13	63	81.5	E	W S W	Clear Fragts	cum	
Ditto, ...	6	.820	.690	69	81	5	12.5	61	82	E N E	S S W	ditto	Clear	
Ditto, ...	7	.760	.692	68	81	3.5	13	62	82	E	S	Overcast	ditto	
Ditto, ...	8	.827	.748	68.5	79	5	12	61	81	E	W	Clear	ditto	
Ditto, ...	9	.846	.754	69	79.5	6	10	60.5	80.5	N E	Calm	ditto	ditto	
Ditto, ...	10	.771	.700	67	80	5	11.5	61	83	E N E	ditto	ditto	ditto	
Ditto, ...	11	.793	.....	66	.....	6	.....	60.5	.....	N E	...	ditto	ditto	
Ranee Dangah,	12	.750	.....	65	.....	.....	.....	61	.....	N E	...	ditto	ditto	»
Teprah Munni,	13	.056	28.960	64	69.5	6	7.5	60	78	N	N	ditto	ditto	210.8
Ditto, ...	14	.060	.940	66	70	9.5	8	60	78	N	N	ditto	ditto	
Ditto, ...	15	28.978	.....	63	.....	8	.....	60	.....	N	...	ditto	ditto	210.6
Dimoli Golah,	16	.231	.146	61	66.5	4	5.5	55	71	N N W	S W	Cum Heavy	cum	209.0
Ditto, ...	17	.204	.128	60	69	5	6.5	54.5	72	N	Calm	ditto	ditto	209.0
Ditto, ...	18	.229	.155	60	66	4	5	54	70	N	ditto	ditto	Overcast	209.2
Ditto, ...	19	.226	.141	60	68	5.5	6	52	72.5	E	W S W	Clear	ditto	209.0
Ditto, ...	20	.200	.....	58	.....	4	.....	53.5	.....	N W	...	Fragts cum	...	
Samleng, ...	21	27.169	27.070	57	62	2	3.5	48	70.5	Calm	S W	Cirri	Overcast	207.6
Ditto, ...	22	.185	.100	54	63	3	5	50	73	N	N W	Clear	ditto	207.4 » »
Ditto, ...	23	.160	.053	57	64	2.5	5	46	70	N	S	ditto	ditto	207.2
Ditto, ...	24	.150 »	.073	57	64	3	4.5	47	73.5	N W	N W	Cirri	Cumuli	207.4
Ditto ...	»	.135	.....	54	.....	3	.....	46	.....	N E	...	Clear	...	207.6
Tikri Bong, ..	26	24.000	28.950	45	54	10	7	37	58	N E	S W	Bright	Clear	201.0
Ditto, ...	27	.073	24.004	46	55	6.5	7	40	60	N N E	S	ditto	Bright	201.2
Ditto, ...	28	.137	.094	46	54.5	7	4.5	40	61	N E	S	ditto	Misty	201.5
Ditto, ...	29	.140	.070	47	52	4	5	40	59.5	E	S W	Misty to S	ditto	201.8
Ditto, ...	30	.126	.071	49	50.5	5.5	5	42	56	S W	S	Hazy	Cumuli	202.0

APPENDIX E.

To LIEUTENANT COLONEL LLOYD.

Poll. Dept. } SIR,

I am directed by the Honorable the President in Council to forward to you the enclosed thirteen applications for grants of Land at Dorjéling, and to desire that you will fix upon sites, and arrange with the agents of the applicants so as to enable them to execute their purpose of erecting summer residences at Dorjéling at as early a date as possible.

2. The want of any map on which favorable sites could be marked and numbered, prevents the Government from fixing the localities so as to give the parties any assurance either of their position or of the extent of land to be assigned to them. They have all been informed in reply that their applications have been referred to you, with instructions, to assist their object to the utmost of your power.

3. If you should be unable to provide sites of equal advantage for all, or in other respects to satisfy their agents, it may be desirable, in order to prevent any imputation of unfairness to select the sites for these first applicants by lot, leaving them to arrange afterwards by exchanges for their mutual accommodation. The applicants have been informed, 1st—That the Government will expect a house to be built on each site within one year from the date of its being assigned by you ; and that if no substantial residence be built within that period, the site will be available for other grantees. 2dly—That each location will hereafter be assessable with a quit rent not exceeding 50 Rs. per annum for each location applicable to pay the expence of Roads, Police and other necessary charges. 3rdly—That it is the intention of Government to leave to you the present arrangement of all details connected with the location of settlers, and the adjustment of their disputes ; and that a British Officer will ordinarily be placed in charge of the Police and administration of the Station. 4thly—That the road of communication with the plains will be opened by Government in the first instance ; but the expence of maintaining it and of minor roads, and local improvements generally, must be borne by the settlers themselves, if in excess of the fund yielded by the quit rent.

4. Considering the number of applications received within the past week, as affording evidence of the sincerity of the desire of the community of Calcutta to locate themselves on the spot, or at any rate to provide themselves with summer residences there, the President in Council acting under the expression

of the wishes of the Governor General on the subject, authorizes you immediately to hire a sufficient party of Tuberdars to commence opening the proposed road of communication with the plains. The road must be prepared on a scale of economy, and the President in Council is of opinion that in the first instance, it will suffice to make it suitable for the passage of loaded cattle. It will be considered in the Military Department whether a party of Sappers and Miners, with any Officer accustomed to road-making in the hills, can be furnished to superintend the laying out of the road, and likewise the best arrangement to be made for the future Military defence of the post.

5. It will be necessary that you consider immediately the best means of establishing a bazar at a convenient point not far removed from the water; and if the springs should be scanty in the dry season, means must be devised of extending the supply by excavating reservoirs. The President in Council will look to you to suggest the further measures necessary to put the Station on a proper footing at as little expence and with as little delay as possible.

6. The Accountant General has been directed to furnish you with an assignment on the Collector of Poorneah for the sum of 2000 Rupees, as an advance upon account applicable to meet the expence of clearing the road, and of preparing the water reservoirs and other necessary outlays.

7. Copy of the reply sent to certain applicants for Grants is annexed for your information.

I have, &c.

(Signed) H. T. PRINSEP,
Secy. to the Govt. of India.

FORT WILLIAM,
14th March, 1838.

To A. B., Esq.
Applicant for a grant of land at Dorjéling.

Poll. Dept.

SIR,

I am desired by the Honorable the President in Council to acknowledge the receipt of your letter dated ———, and in reply to state that your application has been forwarded to Lieut. Colonel Lloyd, the Local Agent at Dorjéling, and that Officer has been instructed to assign you a location, and in other respects to assist you in the accomplishment of your desire to establish a summer-residence at Dorjéling.

2. It is impossible at present to specify exactly the locality, extent, or conditions upon which land will be assigned to you for building purposes; these will be arranged in detail by Colonel Lloyd.

3. It is right however that you should understand that Government will expect, 1st—That you shall build a substantial dwelling house on the site that may be assigned to you within twelve months from the date of its being so assigned; and that if no substantial residence be built within that period, the site will be available for other grantees. 2dly—That each location shall be liable to be assessed with a quit rent not exceeding 50 Rupees per annum, applicable to pay the expence of Roads, Police and other necessary charges. 3rdly—That the arrangement of all details connected with the location of settlers and the adjustment of any disputes that may arise, will at present be committed to Colonel Lloyd. 4thly—The Government will incur the expence of opening in the first instance the road of communication with the plains. The settlers however must be at the charge of maintaining it, and at all charges for minor roads and local improvements generally, which may not be provided from the fund yielded by the quit rent. Any further particulars of information that you may require, may be learnt by reference to the compilation from the records of this Department which is now printing under the authority of Government.

I have, &c.

(Signed) H. T. PRINSEP,

Secy. to the Govt. of India.

FORT WILLIAM,
14*th March*, 1838.

APPENDIX F.

Journal kept during the examination of a line proposed to be followed in the formation of a road from Dorjéling to the plains, by Lieutenant Colonel G. W. A. Lloyd.

, December 13th, 1837.—March from Dorjéling to a bivouac a little above Oonghool, estimated altitude above the sea 6,800 feet.

December 14th.—Re-ascended to the top of the hill and thence proceeded in an E. S. E. direction to explore the proposed line of road towards the plains, at the point where I quitted the old road, the estimated altitude above the sea is 7,400 feet—found the top of the ridge of the mountain of considerable breadth, consisting of various undulations and knolls and very favorable for construction of a good road passable for wheeled carriages, there being no very steep ascent or descent, and such as there are, may all be turned or avoided by detour. The trees are not close, and the undergrowth consists of brambles and various ground creepers, which though they impeded our progress on foot cannot cause any obstacle worth a moment's consideration. In short no mountain country could be more favorable for a line of road than this was found. After exploring for about three miles returned in the evening to the bivouac at Oonghool.

December 15th —Employed all the coolies and people in cutting a path way through the brambles on the road explored yesterday, which was nearly accomplished by evening. In the mean time proceeded farther on myself through the same kind of jungle, the ground being still favorable as yesterday—succeeded in penetrating as far as about six miles from where I first quitted the old road. There is nothing to hinder the formation of a capital road for the whole of this distance.

December 16th.—Having yesterday ascertained that water was procurable near to the spot the people had reached in their clearing, I ordered them to take on their provisions and baggage thus far and leaving them under charge of one or two people near the spring, to proceed in clearing a pathway through the brambles as far as I had explored yeterday.—This was all accomplished by evening, and I returned to Oonghool, having ordered the coolies to come there in the morning to carry the baggage, &c. to a stream which was said to be near the line of road.

December 17th.—Marched this morning as arranged yesterday—passed over the two highest points of the Sinchul mountain, the westernmost estimated at

7,600 and the eastern at 7,800 feet above the sea; the latter part of their march there being no pathway prepared, was found very embarrassing to the coolies as they could scarcely get on with their bangheys through the brambles, therefore I was obliged to halt after passing through the jungle about a mile and could only get a little bad water by digging in a kind of bag in a hollow close by—sent back the coolies to bring on their own things in the morning—named this place Saving Dah (the deer's den.)

December 18th.—The coolies arrived late in the morning, I nevertheless determined to push on and endeavour to reach some stream or a spring, and after proceeding for about a mile farther through the jungle where our progress was much obstructed by fallen trees, we found a stream, on the bank of which I determined to halt—and therefore sent back the coolies to bring up their own provisions and baggage which was not all done till evening—named this place Sennah Dah (the bear's den.)

December 19th.—The weather for the last three days having appeared very gloomy and threatening and the people suffering very much from cold and want of shelter, I began to fear a fall of snow, in which case as there were no means of retreat, some of them must have perished. I therefore determined to give up following out the line of road on the upper part of the mountains, and to commence from the plains where we could always make good our retreat in case of necessity to a warmer climate—in consequence of this decision I marched back this day to Oonghool on my way to the plains.

December 20th.—Halted this day at Oonghool to collect the people and receive some more supplies from Dorjéling.

December 21st.—Marched to Samdong.

December 22d.—Marched to Goolgoobeea Nur.

December 23d.—Marched to Tippera Munny.

December 24th.—Halted at Tippera Munny to allow of supplies coming up.

December 25th.—Marched to Kuput Doora.

December 26th.—Proceeded up the rise towards the hills, clearing away through a heavy grass jungle which, as it would not burn, it became necessary to cut down.

December 27th.—Marched to a small hill near some mud huts, water distant. Estimated altitude above the sea 870 feet.

December 28th.—Marched along the ridge of the hill through a forest, first part long light grass, latter part thick and heavy, to the foot of one of the spurs of Sinchul where having found a small supply of water I halted. Altitude above the sea 1,300 feet.

December 29th.—Halted; employed coolies in clearing the road we had come, and proceeded exploring in advance myself.

December 30th.—Employed coolies in clearing the road I had explored yesterday and which we are to march to-morrow.

December 31st.—Marched to the spot fixed on yesterday, which is at an elevation of 1,600 feet above the sea and here is a good halting place, but the spring of water near is very small, and not I think very pure, my elephants loaded and also loaded cattle came to this place which I shall call Punka Barree being near some Muh cultivation and huts so called—from Bannee Danga to this place might be made one march or from Titaleya two.

January 1st, 1838—2nd and 3rd, employed these three days in exploring, clearing jungle and forming a pathway through the forest up the face of the hill; the whole, with the exception of a small space at the very top practicable for loaded cattle, and even this space might be made so, but I think the road instead of being up the end of the hill, ought to be carried in a slope up the Eastern side of it, though as my object was to see the country I avoided the side on which I should have been buried in a jungle and unable to see any thing; I therefore kept to the ridge of the hill, though even along it, I could not see much.

January 4th.—Marched to a spot about three miles up the hill where a spring of water had been discovered yesterday. Altitude above the sea 2,900 feet.

January 5th.—Proceeded up the hill to an elevation of 4,300 feet; when we had attained this height, we altered our direction from nearly North to E. N. E. and explored for nearly two miles on nearly a level along the ridge, but buried in a jungle of the small bamboo, which for the most part shut out all view; from one or two points I saw the spot on the top of the ridge from whence we had returned on the 19th ultimo, distant I should think in a straight line about eight miles.

January 6th.—All the dangurs were this morning reported deserted,—this disabled me from moving on to the point reached yesterday. Sent on the few remaining coolies to improve the road, rather than let them remain idle.

January 7th.—Marched this morning to the point reached on the 5th. It commenced raining about noon which prevented my going on alone to determine the line to be followed,—rain at intervals throughout the afternoon.

January 8th.—Proceeded exploring and clearing the jungle in a N. E. direction up the mountain from 9 A. M. till 2 P. M. From the appearance of the vegetation at the point we reached I conclude we had attained the summit along which the road will proceed to Dorjéling; returned to our bivouac which we reached at 4½ P. M.—weather cloudy.

January 9th.—Marched this morning about three miles to the bank of a rivulet at the foot of the last rise towards the summit attained yesterday,—no water has yet been found beyond this, and I fear we shall have to go a long distance before we meet with any further on, or else we must descend again to procure it. This spot appears to me to be of similar elevation to Tikreebong on the old road,—estimated altitude above the sea 5,300 feet.

January 10th.—Ascended to the summit of the mountain and proceeded along it for a considerable distance, the time occupied in so doing being from

9 A. M. to 2½ P. M The weather was luckily clear and we could plainly discern the place we had quitted on the 19th ultimo to descend to the plains; the top of this mountain is somewhat similar to the one before mentioned, and as it is a confused mass of knolls intersected by various ramifications and windings of hollow ways and of considerable breadth there can be no difficulty I imagine in making a road for carriages along it. There is little other undergrowth at present than grass: it appears to be frequented by numerous herds of deer and is infested with tigers,—returned to our bivouac by 5 P. M.

January 11th —Sent on the coolies to make a path passable as far as a small rivulet running to the eastward which we crossed yesterday about four miles off—they accomplished this and returned at 5 P. M.

January 12th.—Marched this morning to the rivulet mentioned yesterday. The distance must be about five miles and generally favorable for the construction of a road, indeed I think in its present state it is practicable for carriage cattle. The estimated altitude of this spot above the sea is 6,200 feet.

January 13th.—Proceeded at 9 A. M. in the supposed direction desired, followed by the coolies making a pathway,—went on in this way till 1 P. M., when we became so much involved in clouds and fogs as to render it very improbable we should keep the proper direction, not being able to see fifty yards from us and obliged to trust entirely to the compass; after remaining two hours in hopes of its clearing up, we returned at 5½ P. M. to our bivouac.

January 14th.—Marched this morning to a small spring supposed to be the head of the Kunam nullah. The weather very threatening and cloudy—nothing visible above fifty yards off—supplies running short. Estimated altitude of this spot above the sea 6,400 feet.

January 15th.—Proceeded this morning in advance to ascertain the line of road, and at 1 o'clock from a temporary clearing of the fog, we supposed we had lost the proper direction and diverged considerably too much to the eastward, as we perceived the high line of mountain considerably to the westward of us; we therefore returned to our bivouac—rain in the evening.

January 16th.—This morning the weather being a little more clear than yesterday, the endeavour to fix the line of route to be pursued was more successful, and having set out at 9 A. M. I succeeded by half past noon, in striking the point of the route brought down from Dorjéling, from whence we had returned on the 19th ultimo. This was a source of great gratification to the whole party, and the coolies having been two days clearing a path in the right direction from our bivouac, I hope to-morrow's work will complete the pathway the whole distance from the plains to Dorjéling. Rain at 2 P. M. and in the evening—no supplies for the people remaining.

January 17th.—Sent off the coolies to finish clearing a pathway to Sennah Dah, the spot we had quitted on the 19th ultimo, and followed them myself at 9 A. M.; this work was not finished till late and we did not return to our bivouac till near 6 P. M. From 11 A. M. this day we have been enveloped in fog, the water dripping from the few remaining leaves of the trees—the people

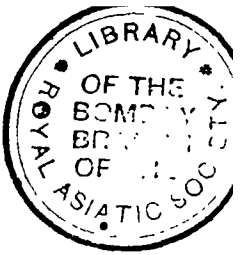
shivering with cold and no food for the last two days, in consequence of the neglect of the person employed to furnish supplies—every appearance of the snowy weather setting in; if it does come on, the condition of the Bengalees will be miserable indeed. The pathway from the plains to Dorjéling has now been completed without crossing any rivers, and the line as far as I can judge, may be made practicable for carriage cattle. The worst part is near the plains, but I have no doubt it may be made good. After attaining 4,300 feet elevation above the sea, I think it would not be difficult to form a road for wheeled carriages.

January 18th.—In consequence of the people having had no food for the last two days, nothing could be done to-day. I had intended to move on half way to Dorjéling, but it being late before the supplies arrived which I am happy to say they did about 1 P. M., I deferred my march. Had these supplies not arrived, I should have been abandoned here by the whole of the people and left to get on or return as I best could.

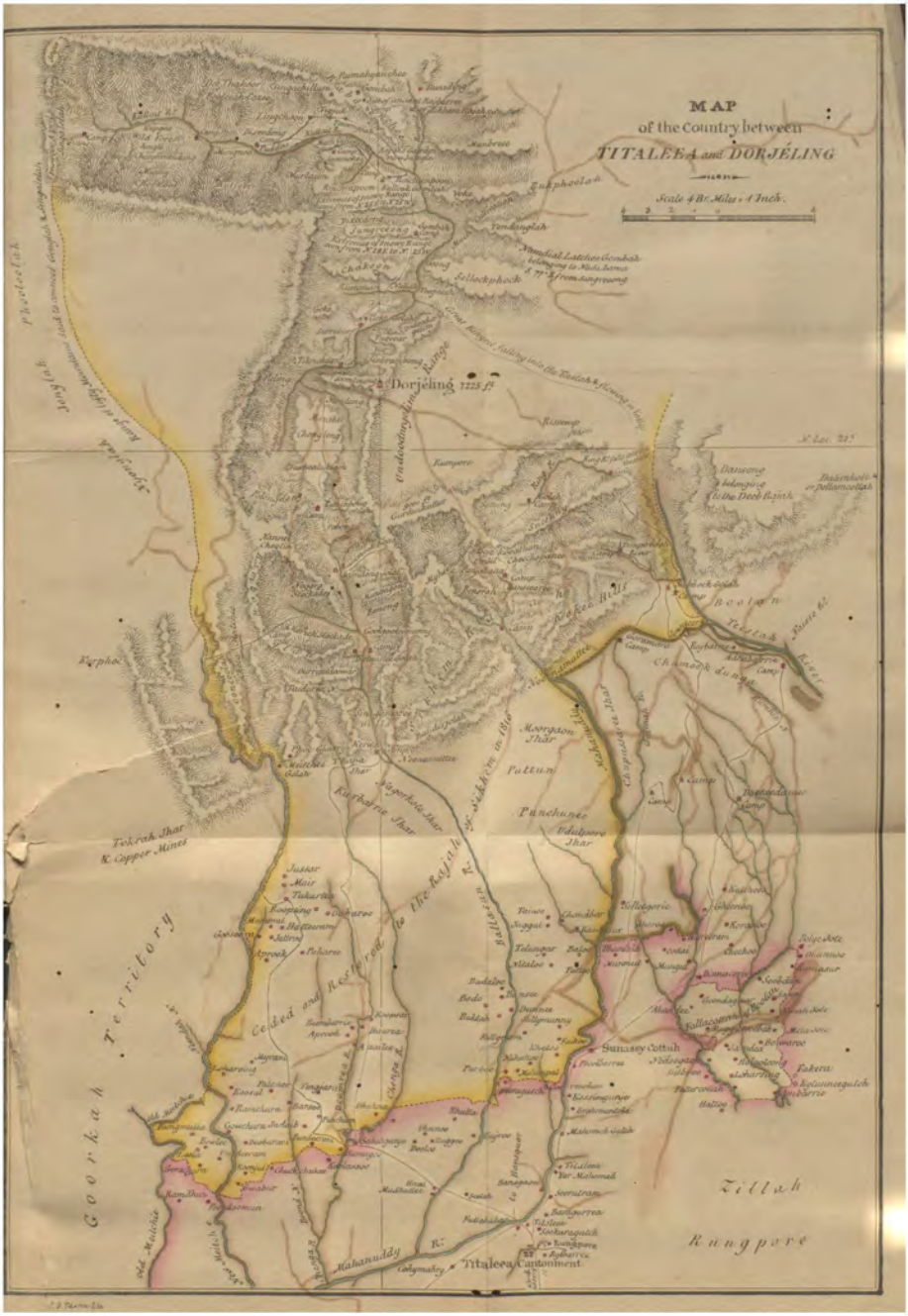
January 19th.—Marched this morning to a spot I have named Sennah Dah (the bear's den) the place I had returned from on the 19th ultimo to descend to the plains, having thus accomplished following out the whole line from Dorjéling to the plains, and not having encountered any insurmountable obstacle to a road for carriage cattle, and I have little doubt that in the course of time a line will be found out practicable for a road for wheeled carriages. Estimated altitude of the Sennah Dah above the sea 7,000 feet.

January 20th.—Marched to Dorjéling—after the completion of this line of road, Dorjéling will be accessible in three marches from the foot of the hills.

FINIS.



G. H. Hallmann, Bengal Military Orphan Press.


MAP
of the Country between
TITALEEA and DORJÉLING
Scale 4 Br. Miles = 1 Inch.
Dorjeling 7225 ft.
Goorkah Territory
Ceded and Restored to the Rajah
Titalea Cantonment
Tillah
Rungpore
Sumasy Cottah
Fokera
Tokrah Thar
K. Copper Mines
Pattun
Panchunee
Mahanuddy R.

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